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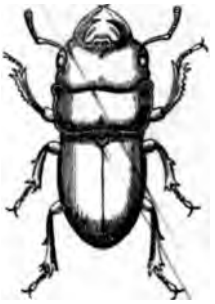

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Thomas Say

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. VI. JANUARY, 1895. No. 1.

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THOMAS SAY.—I

By Prof. F. M. WEBSTER, Wooster, Ohio.

During late Autumn of the year 1888, the writer had the pleasure of spending a few days in New Harmony, Ind., a guest of the late Col. and Mrs. Richard Owen, both of whom were residents of that somewhat famous little city during the nine years that "The Father of American Entomology" made it his home, and with whom they were both personally acquainted. Though at that time upwards of ninety years old, Col. Owen and his good wife pointed out many, to me, historic places, made sacred by their associations with Thomas Say, and feeling that not only such places would sooner or later disappear, but those who were able to give their history from personal recollections would within a few years cross the Dark River, I engaged to have a series of photographic views taken under the supervision of my host and hostess. The three views that are to follow in forthcoming numbers of the NEWS, were thus obtained, and will be explained as they are consecutively used. The portrait included in this number is from a photograph of a steel engraving in the possession of Mr. Frategot, of New Harmony, to whose father it was

presented by Say, who considered it a very faithful picture of himself. Dr. Skinner informs me that there is another of these engravings in the library of The Academy of Natural Sciences of Philadelphia, and beyond this I know nothing of the history of the original, nor could I learn anything of it at New Harmony.

In this portion of my sketch, the aim will be to follow Say only to his removal from Philadelphia to Indiana, in 1825, the remainder will accompany the engravings which illustrate his life in his Western home.

As the author has not been able to himself secure any important data from the people of New Harmony relative to the life of Say prior to his coming West, he is for this information obliged to draw very largely upon the memoir read by Say's friend, Mr. George Ord, before the American Philosophical Society, Dec. 19, 1834, and published in the LeConte edition of Say, pp. vii–xxi, vol. i.

Thomas Say was born in Philadelphia, July 27, 1787, of Quaker parentage, at least on his father's side, the latter being a physician and apothecary. Thomas was educated under Quaker patronage, which probably compared favorably with the educational ideas of the times, but the embryo entomologist appears to have had a too warm love for nature to take kindly to such unnatural methods of acquiring knowledge, and as a result his distaste for letters frequently appeared in his publications during after life. With the thrift and industry so frequently a marked characteristic among the Friends, it is not surprising that his father should seek to place his son in a respectable avocation, and, hence, after he left school, Say was first taken into partnership in business by his father, and later established, with others, a separate firm, to continue in the same useful calling. Here, again he gave token of his future, and at this early day appears to have thoroughly abhorred a life of buying and selling as he did in later years. He appears to have inherited the mild, lovable disposition of the sect from whence he sprung, but not their thrifty financial ability. He was, during his whole career, generous to a fault, but his honesty and integrity has never been questioned. In the minds of those of his acquaintances who yet survive him, he lives as a man who loved his neighbor even better than himself and who never had an enemy. With such a character it is not in the least surprising that he did not succeed in business, but became

pecuniarily responsible for the engagements of others, a course ending in failure and bankruptcy. His financial reverses, however, do not seem to have weighed heavily upon his mind, but, on the contrary, as the grieved child turns to its mother's arms for solace and soothing words, so Thomas Say, in his financial troubles, appears to have sought consolation in his studies of nature, quietly living what Bryant wrote in the opening stanza of Thanatopsis, and, disregarding his losses, found that healing sympathy, that stole away their sharpness ere he was aware.

Mr. Say became a member of The Academy of Natural Sciences of Philadelphia in April, 1812, soon after it had been reorganized, and when the crisis in his financial affairs left him stranded, took up his abode in the building in which the Academy held its meetings, and turning his back on the financial world as it were, began his entomological labors in earnest. It was here that he was brought in close contact with his afterwards friend and benefactor, William Maclure, Esq., but of their relations later we shall have more to say further on in our series of sketches. It was in the Journal of the Academy of Sciences, began in 1817, that Say first appears as an author, which seemed to strengthen the bonds binding him more closely to his chosen field of scientific investigation. In 1818, with Messrs. Maclure and Titian R. Peale, he visited the sea islands and adjacent coast of Georgia and eastern Florida, from which latter region they were driven by the hostility of the Spanish, who yet had control of the territory. It was doubtless this journey that paved the way for his connection with the two scientific expeditions fitted out by the United States Government, and placed under the command of Major Long, with Thomas Say as chief zoologist. The years intervening between 1818 and 1825, when he left Philadelphia, were certainly busy ones for Say, who, aside from his connection with these expeditions which necessarily required considerable time in accompanying them to the then unexplored regions of the West, he was for a time Professor of Natural History in the University of Pennsylvania, and of Zoology to the Philadelphia Museum. Two of the three volumes of his "American Entomology" were published, and besides this all of the ornithological papers appearing in the Journal of the Academy of Natural Sciences, to which the name of Charles Bonaparte is attached, were edited by him at the request of the author. More than this,

he prepared for the press the first volume of Bonaparte's "Natural History of Birds Inhabiting the United States," though it was afterwards revised by another. So fully was he occupied with his own labors, and so freely did he devote his time to assist others, that he prolonged his studies far into the night, even during Summer until the breaking of day, thus sapping his life for the benefit of science and his fellow-man. Even before he left his native city he was much broken down in health, though giving freely both of his time and means, when he had any, and willing to do even more. Such was Thomas Say at the age of thirty-eight, when he was induced by Messrs. Maclure and Owen to accompany them to their confraternity of New Harmony. Of his life and labors in Indiana during the remaining nine years of his life I shall speak farther in a second paper.

———o———

ADDITIONAL LIST OF INSECTS TAKEN IN ALPINE REGION OF MT. WASHINGTON.

By ANNIE TRUMBULL SLOSSON.

A year ago I published (ENT. NEWS, vol. v, p. 1) a catalogue of the insects I had up to that time taken on the summit of Mt. Washington. That list comprised 300 species. I have this season taken in same region, at or above 5500 feet altitude, more than 200 species not included in former list. I herewith append the names of these, and I take this opportunity to acknowledge gratefully the invaluable assistance of Messrs. Coquillett, Liebeck, Fox, Davis, Banks, Van Duzee and others, who have identified for me insects in the different orders.

HYMENOPTERA.

Tenthredinidæ.

Hylotoma pectoralis *Leach.*
Harpiphorus maculatus *Nort.*
Monophadnus tiliæ *Nort.*
Macrophya slossonia *MacG.* mss.
" tibiator *Nort.*
Taxonus borealis *MacG.* mss.
Tenthredo grandis *Nort.*
" ruficolor *Nort.*
" tricolor *Nort.*
" variata *Nort.*
Lyda semidea *Cr.*

Urocerida.

Urocerus abdominalis *Harr.*

Ichneumonidæ.

Ichneumon brevicinctor *Say.*
" funestus *Cr.*
" lætus *Brulle.*
" milvus *Cr.*
" pravus *Cr.*
" promptus *Cr.*
" sp. ?

Cryptus atricollaris var.
" montivagus *Prov.*
" sp.?
" sp.?
" sp.?
Limneria flaviricta *Cr.*
" hostilis *Cr.*?
Banchus sp.?
Euceros n. sp.
Lampronota rubrica var.? *Cr.*
" sp.?
Meniscus elegans *Cr.*
" superbus *Prov.*
" slossonæ *Davis* mss.

Braconidæ.

Ascogaster rufipes *Prov.*
Macrodus sp.?
Opius n. sp.

Chalcididæ.

Chalcis flavipes *Fab.*

Myrmicidæ.

Leptothorax canadensis *Prov.*

Pompilidæ.

Pompilus apicatus *Prov.*

Andrenidæ.

Prosopis varifrons var.?
Andrena sp.?

Apidæ.

Nomada bisignata *Say.*
Bombus terricola *Kirby.*

HEMIPTERA.

Heteroptera.

Ischnorhynchus didymus *Zett.*
Rhinocapsus van duzei *Uhl.*
Plagiognathus obscurus *Uhl.*
Pagasa nitida *Stal.*
Diplodus luridus Stal.

Hanoptera.

Delphacinus vittipennis *VanD.* mss
Helicoptera septentrionalis *Prov.*
Idiocerus lachrymalis *Fitch.*
" suturalis *Fitch.*
" pallidus *Fitch*?
Thamnotettix kennicotti *Uhl.*
Aphid gen.? sp.?

COLEOPTERA.

Cicindelidæ.

Cicindela 6-guttata *Fab.*

Carabidæ.

Bembidium quadrimaculatum *Linn*
Platynus quadripunctatus *DeG.*
Harpalus viridiæneus *Beauv.*
Tachycellus nigrinus *Dej.*

Gyrinidæ.

Dineutes sp.?

Staphylinidæ.

Tachyporus chrysomelinus *Linn.*
Pæderus littorarius *Grav.*
Mycetoporus lepidus *Horn.*

Coccinellidæ.

Hippodamia parenthesis *Say.*
Hyperaspis lugubris *Rand.*
Scymnus tenebrosus *Muls.*

Cryptophagidæ.

Atomaria ephippiata *Zimm.*?

Histeridæ.

Hister interruptus *Beauv.*

Nitidulidæ.

Epuræa ovata *Horn.*
Ips sanguinolentus *Oliv.*

Elateridæ.

Adelocera aurorata *Lec.*
Elater fusculus *Lec.*
" pullus *Germ.*

Buprestidæ.

Dicerca divaricata *Say.*

Cerambycidæ.

Criocephalus asperatus *Lec.*
Bellamira scalaris *Say.*
Xylotrechus quadrimaculatus *Hald*
Acanthocinus obliquus *Lec.*

Chrysomelidæ.

Diachus auratus *Fab.*
Typophorus 4-notatus *Say.*
" thoracicus *Melsh.*
Prasocuris varipes *Lec.*
Disonycha pennsylvanica *Ill.*
" xanthomelæna *Dalm.*
Crepidodera helxines *Linn.*

Melandryidæ.

Emmesa connectens *Newm.*

Pythidæ.

Salpingus virescens *Lec.*

Meloidæ.

Epicauta cinerea *Forst.* var.?

Curculionidæ.

Pissodes affinis *Raud.*
Anthonomus scutellatus *Gyll.*
Hylobius pales *Hbst.*
Cryptorhynchus bisignatus *Say.*

Scolytidæ.

Xyloterus bivittatus *Kirby.*
Polygraphus nigripennis.
Dryocœtes autographus.

DIPTERA.

Bolitophila fusca* *Meig.*
Simulium pisicidium *Riley.*
Bibio femoratus *Wied.*
Gnophomyia tristissima *O. S.*
Bittacomorpha clavipes *Fab.*
Arthroceras leptis *O. S.*
Stratiomyia picipes *Lw.*
Pangonia tranquilla *O. S.*
Chrysops indus *O. S.*
Laphria canis *Willst.*
Hybos triplex *Walk.*
Empis ravida *Coq.* mss.
Dolichopus longimanus *Lw.*
Psilopus sipho *Say.*
Lonchoptera lutea *Panz.*
Didea laxa *O. S.*
Volucella evicta *Walk.*
Mallota posticata *Fab.*
Temnostoma venustum *Willst.*
Platypeza obscura *Lw.*
Jurinia algens *Wied.*
Echinomyia florum *Walk.*
Nemoræa n. sp.
Exorista platysamiæ *Town.*
" n. sp.
Masicera n. sp.
" luctuosa *v. d. W.*
Frontina n. sp.
Eulasiona comstocki *Towu.*
Ennyomma çlistoides *Town.*
Chætona tenebrosa *Coq.* mss.
Cynomyia grœnlandica *Zett.*
" flavipalpis *Macq.*
Calliphora vomitoria *Linn.*
" erythrocephala *Meig.*
Hæmatobia serrata *Desv.*
Musca domestica *Linn.*
Aricia marmorata* *Zett.*
" vagans* *Fall.*
" nigrifrons *Walk.*
" sp.?
" sp.?
" sp.?
Spilogaster carbonella* *Zett.*
Hydrotæa occulta* *Meig.*
Hylemyia lipsia *Walk.*
Phorbia floccosa *Macq.*
" fusciceps *Zett.*
" perrima *Walk.*
Homalomyia caniculatus *Linn.*
Caricea albicornis* *Meig.*
" substituta *Walk.*
" lata *Walk.*
" nivea *Linn.*
" solita *Walk.*
" intacta *Walk.*

* "Not before recognized from America," D. W. Coquillett.

Cordylura slossonii *Coq.* mss.
Scatophaga merdaria* *Fab.*
Blepharoptera discolor *Lw.*
Sciomyza albocostata *Fall.*
Tetanocera arcuata *Lw.*
" rotundicornis *Lw.*
" valida *Lw.*
" plebja *Lw.*
Loxocera pleuritica *Lw.*
Psila bicolor *Meig.*
Trypeta fausta *O. S.*
Palloptera arcuata* *Fall.*
Sapromyza compedita *Lw.*
" philadelphica *Macq.*
Chlorops grata *Lw.*
Borborus equinus *Fab.*
Trineura aterrima *Fab.*
Phora femorata* *Meig.*
" nigriceps *Lw.*
" giraudii* *Egger.*

LEPIDOPTERA.

Heterocera.

Albuna montana *Hy. Edw.*
Platagrotis imperita *Gn.*
Semiophora elimata *Gn.*
Carneades dissona *Moesch.*
Semiothisa granitata *Gn.*
Epirrita sp.?
Crambus vulgivagellus *Zell.*
Ptycholoma persicana *Fitch.*
Gelechia sp.?
Pterophorid gen.? sp.?

ARACHNIDÆ.

Araneæ.

Steatoda marmorata *Hentz.*
Bathyphantes alpina *Em.*
Crustulina sticta *Camb.*
Linyphia mandibulata *Em.*
Ceratinella emertoni *Camb.*
Tmeticus montanus *Em.*
Dismodicus alpinus *Bks.* mss.
Epeira nordmanni *Em.*
" silvatica *Em.*
Lycosa pictilis *Em.*
Pirata insularis *Em.*
" minuta *Em.*
Pardosa albomaculata *Em.*
" pallida *Em.*
" minima *Keys.*
Dendryphantes sp. ("probably
Attus cruciatus *Em.* [new" *Bks.*)

Acarina.

Trombidium sp.? (immature).
Actineda agilis *Bks.*
Bdella cardinalis *Bks.*
Gamasus sp.?

ABERRATION, VARIETY, RACE and FORM.

By Dr. RODRIGUES OTTOLENGUI.

Some months ago I received a pair of insects which, while closely resembling a well-known species of Bombycid, yet were markedly different in coloring. I showed them to a prominent specialist in this group and he expressed the opinion that they had been artificially produced. Another gentleman thought they represented a good variety; a third thought them aberrations, and finally another prominent entomologist advised me to name and describe them as a new species.

* "Not before recognized from America," D. W. Coquillett.

I have also had similar experience with other specimens which I have thought worthy of at least a varietal name, but in every instance I have been advised not to describe my specimens, or name them. Meanwhile I have read of new varieties, and even aberrations described by some of my advisors, and I found it very hard to comprehend the differing positions taken in these instances.

In undertaking to write upon the subject, I have adopted a method which has produced good results in another field, my own profession, dentistry. I sent out a query as to the meaning of the terms Variety, Form and Aberration, and the circumstances under which they should receive special names. I will read the replies. Rev. George D. Hulst says:

A variation is the differing of an individual or a few individuals (in a degree not very strongly marked), from the normal or typical form.

An aberration is a variation where the differing is very decided, and intergrades are wanting, otherwise known as "sports."

A variety is a comparatively broad term as it is ordinarily used —covering race, form, subspecies, and indeed all distinctions below species.

Under this a form is one or more of the variations an insect may take in view of seasonal influences, for example *Grapta fabricii* is a form of *G. interrogationis;* or a sexual difference as *Papilio turnus* from *P. glaucus.*

A race is one or more of the variations an insect takes in the same brood, or in all broods in view of climatic conditions, as for example, *Triptogon occidentalis* I consider a race of *T. modesta.*

There remain the variations which occur in the same insect under the same conditions and the name variety more especially belongs, as for example *Papilio walshii* is a variety of *P. ajax.*

A species is a distinct variation, permanent, supposed to breed true to itself,—without known intergrades with other species.

A subspecies is very nearly like what I call race above, and is where intergrades are known, but are infrequent. Perhaps most would call *Triptogon occidentalis* a sub-species of *T. modesta.*

A sub-variety would be nearly equal to the word form, as explained above. Of course it must always be recognized no line can be sharply drawn; there is no break in Nature. The breaks

which we make are artificial and for convenience only, and none hold in all cases. My list would be :

Genus.—Species distinguished by a type difference in structure.
Sub-genus.—Differing in structure, but less.
Species.—Breeding true to self, and not intergrading.
Sub-species.—Breeding true to self, and rarely intergrading.
Race.—Breeding true, except in intermediate localities.
Variety.—Forms distinct, but intergrading, more or less in any locality.
Sub-variety.—Forms distinct, or not distinct, but the name applying to a variety comparatively infrequent or not marked.
Form.—A seasonal or sexual variation somewhat permanent.
Variation.—An individual variation, infrequent and not generally distinct, and not permanent.
Aberration.—An individual, sport, or variation, very distinct, without intergrades.

Prof. John B. Smith replies: Under the term variety I understand a departure from what may be considered the usual form of an insect, which, while it does not breed true to itself yet at the same time occurs frequently enough to bear a reasonable proportion to the ordinary form, occurring independently of season or of locality. It is to be understood, also, that there is no regular succession of intermediate forms between this variety and the usual form. Where a range of intermediate forms exists I would not consider the extreme entitled to a name, but I would simply rank them as variations; for instance, we have in *Carneades infelix* a form in which we have the full *Noctuid* markings present, the colors well marked and contrasting, and this species varies to a form which is entirely black without any trace of markings whatever. Every intermediate stage between the immaculate and fully marked form is represented, and I do not, therefore, give a name to anything except a species.

Under the term form I understand what may be called a seasonal variety, as where Summer and Autumn, or Spring and Summer broods offer a different appearance in size, color, pattern, etc. This is what is also called a seasonal or a dimorphic form, and these may be named provided it is specified that a seasonal or dimorphic name is intended.

An aberration is a sport, and indicates a monstrosity in some

directions; either in markings, in color, in suffusion, or in the direction of an Albino. This occurs only at rare intervals without any rule either as to season, locality or other permanent cause, and may be due to accident or the result of unusual circumstance occurring at any time during the early life of an insect. An aberration may, under circumstances, become a variety in the course of time if circumstances induce a similar kind of aberration sufficiently often. I have never yet named an aberration, and I do not think I ever will.

I have another term about which you do not ask, and that I include under the name *Race*. Under this term I understand what is practically a geographical variety; that is to say, a form of an insect which breeds true to itself, occurring constantly in one locality and differing in some particulars which are not specific from the same species as it occurs in another locality. We have a good example of Races, as I understand them, in the genus *Satyrus*. An aberration I do not name at all, but simply call attention to the fact that such a one exists. A form, where it is sufficiently marked, is always entitled to a name, if a man chooses to apply one. Personally, I cannot remember that I have ever named a form. Varieties are always entitled to a name, although I apply varietal names very sparingly. It is only where a marked difference exists, such as would be apt to prevent recognition of its relation to the entire species, that I think a varietal name worth giving, in order to call the attention of the student to the fact that a range of variation exists which will put him on his guard against assuming a departure from the type to mean a new species. As I already indicated any departure from the type which is connected with the type by an unbroken series of intergrades is not a variety in my opinion, and I refer you again to the example above cited of the *Carneades*. Your third question it is almost impossible to answer. A specimen being sent me by itself, differing from anything heretofore known to me, would be placed nearest to the species which it most resembled in structural and other characters. If I were to determine it, I would give it that name with a query as to its being a variation or variety, and I would allow the matter to rest that way until further material came to hand. An aberration may be impossible of recognition until an examination of a very large number of specimens indicated its relationship, or unless some distinctive struc-

tural character should refer it to a known species with certainty. Now I wish to call attention to just one thing: in all the discussions on this matter so far as the Lepidoptera are concerned, everything seems to have gone on the question of color and markings; factors which within a limited range are quite constant and worthy of high rank, but which above all other matters are subject to variation and to aberrations. I always examine an insect for structural characters before I determine its rank in any work that I do. I have never yet found, anywhere, two species that are entirely alike in structural characters, and where I find an absolute agreement between two species in all the structural characters I incline to consider them as belonging to the same species, whatever the difference may be in marking or color, until I prove to my own satisfaction that the range of variation in marking departs from what is usual or possible in the genus. I am very much more conservative in the matter of naming varieties than many of our Lepidopterists of the present day, and I may be wrong and they right. I cannot see the use of burdening our lists with a lot of really unmeaning names, like, for instance, all those names applied by Prof. French to the species of *Leptarctia*, and I may cite others that are as poorly based. I think, however, you have my views on the subject at sufficient length.

(To be continued.)

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NOTES ON TYPES OF NORTH AMERICAN GEOMETRINA IN EUROPEAN COLLECTIONS.—II.

By GEO. D. HULST.

(Continued from page 306, vol. v, ENT. NEWS)

A specimen in the Museum has a label in Dr. Packard's handwriting, *Tephrina modestaria* Pack. It is the same as *T. argillacearia* Pack. I do not know that it was ever described.

Mr. J. Alston Moffat, Curator of the Entomological Society of Ontario, who has examined for me the material of the D'Urban collection, writes me that *Numeria inceptaria* Wlk. 1667, is this same species, and in that case Walker's name has priority. I am much indebted to Mr. Moffat for his determinations, and take this occasion to express my thanks to him.

Thamnonoma tripunctaria Pack. is put by Mr. Warren as a

synonym of *Tephrina lorquinaria* Gn. ii, 101. The remarks under *T. monicaria* Gn. above apply here, as Guenée's type is probably lost. I think Mr. Warren's reference is correct.

The type of *Thamonoma curvata* Grt. is in the Museum, and is put as a synonym of *Phasiane excurvata* Pack., which is a synonym of *Anaitis orillata* Wlk. 1740, which is a synonym of *Aspilates strigularia* Wlk. 1675, and *Anaitis continuata* Wlk. 1445, the latter being the oldest name; *curvata* does not have the basal and middle lines coalescent posteriorly, though they are nearly so, and I have specimens where they do become one. Grote's name can stand for this varietal form.

Psamatodes eremiata Gn., of which the type is in the Museum, has as synonyms—*Tephrina retectata* Wlk. 959, *Tephrina gradata* Wlk. 968, *Tephrina retentata* Wlk. 968, and *Macaria subcinctaria* Wlk. 1655.

Ellopia plagifasciata Wlk. 1508, is *Numeria occiduaria* Wlk. 1016. This is not, in my opinion, the same as *Numeria pulveraria* Hbn.

The type of *Fidonia truncataria* Wlk. 1034, is much darker than the form usually met with in our collections. It is, however, an arctic form, and among the Geometrina, under arctic conditions, there is a tendency to melanism, as well as to hairiness, and a squamose condition of vestiture.

Tephrina notataria Wlk. 407, *Fidonia discospilata* Wlk. 1034, and *Larentia fidoniata* Wlk., 1183, are the same species, and are also one with *Fidonia bicolorata* Minot.

Azelina aretaria Wlk. 258, is the same as *Caripeta subochreata* Grt. *Caripeta latiorata* Wlk. 1525, and *Caripeta angustiorata* Wlk. 1524, are variations of one species. Mr. Warren does not think *C. aretaria* to specifically distinct, but I am not yet ready to unite it with the others. The amount of material is yet very small for comparison.

Caripeta divisata Wlk. 1525, has as a synonym *Cidaria albopunctata* Morr. The type of the latter is in the Museum.

In the Museum collection Mr. Warren has ranged *Drepanodes olyzonaria* Wlk. 69, *D. bicesaria* Wlk. 73, *D. œmearia* Wlk. 73, *D. puber* Grt. *D. varus* G. & R., *D. æquosus* G. & R., *D. sesquilinea* G. & R. and *D. juniperata* Pack., as one species. The type of *D. puber* is in the collection. *D. olyzonaria* is like *D. æquosus*, *D. bicesaria* and *D. æmearia* are nearly as *D. puber*

Grt. I agree with Mr. Warren's reference. *D. infensata* Gn. i, 68, and *D. ephyrata* Gn. i, 69, I found are the same species, so the oldest name yet known is *D. infensata* Gn.

The synonymy of *Prochœrodes transversata* Dru. I found to be the same as stated by Dr. Packard, namely, *incurvata* Gn., *goniata* Gn., *transmutens* Wlk., *contingens* Wlk., *transposita* Wlk. *Transmutens* and *incurvata* are dark forms, *contingens* is yellowish, *transfindens* is striated and dark spotted.

Oxydia vesulia Cram. has *distichata* Gn. i, 59, and *peosinata* Gn. i, 59, as synonyms. Mr. Warren joins several other names to *vesulia*, but having seen the types of Guenée I do not believe them to be conspecific, as Mr. Warren puts them.

Tetracis aspilata Gn. i, 141, and *T. allediusaria* Wlk. 253, are the same species with *T. crocallata* Gn. i, 141. *T. aspilata* has the cross-line of the hind wings obsolete.

Mr. Warren has established the genus *Ctenotetracis* for *parallelia* Pack. and *triangulifera*ta Pack.

Eutrapela ægrotata Gn. i, 141, is not a synonym of *Sabulodes dositheata*, as Dr. Butler seemed to think, and on whose authority I united them; *ægrotata* is our Californian species, and *Ennomos arsesaria* Wlk. is a synonym; *ægrotata* is, however, of *Sabulodes caberata* Gn. i, 45.

Apicia? deductaria Wlk. 237, *Lozogramma atropunctata* Pack. and *Drepanodes fernaldi* Grt. are the same. The type of *D. fernaldi* is in the Museum.

Tetracis pandaria Wlk. 173, is a synonym of *Caberodes majoraria* Gn.

I agree with Dr. Packard that the following are synonyms of *Caberodes confusaria* Hbn. : *metrocamparia* Gn. i, 137, *remissaria* Gn. i, 137, *imbraria* Gn. i, 137, *superaria* Gn. i, 138, *ineffusaria* Gn. i, 138, *floridaria* Gn. i, 139, and *phasianaria* Gn. i, 140. I add as other synonyms: *Caberodes interlinearia* Gn., *C. eldanaria* Wlk. 170, and *C. varadaria* Wlk. 251.

Apicia cayennaria Gn. i, 82, is not the insect known in our catalogues as *Caberodes cayennaria*. It is *Caberodes distycharia* Gn. i, 83. *A. cayennaria* Gn. has not, in my knowledge, ever been taken in the United States.

Napuca orciferata Wlk. 1693, is considerably darker than any specimens I had seen before. It follows the arctic tendency to melanism, but is conspecific with *Phasiane aberrata* Hy. Edw.

and *Aspilates gilvaria*, var. *labrodorata* Moesch.; of *P. aberrata* I have seen the type, and of *labrodorata* I have a typical specimen sent me by Mr. Moeschler.

Azelina honestaria Wlk. 258, and *A. stygiaria* Wlk. sup. 1548, are conspecific with *Azelina hubnerata* Gn.; *stygiaria* is var. *atrocolorata* Hulst. I may as well mention that *Gonodontis peplaria* Hbn., Zutr. 709, 710, is the same insect. The synonymy will thus be expressed:

Azelina peplaria Hbn.
stygiaria Wlk.
atrocolorata Hulst
var. *hubnerata* Gn.
honestaria Wlk.

Caberodes antidiscaria Wlk. 1513, is the same as *C. lentaria* Hulst.

Metanema determinata Wlk. sup. 1551, is the same as *M. carnaria* Pack.

Metanema æliaria Wlk. 260, is a synonym of *M. quercivoraria* A. & S.

Ellopia fiscellaria Gn. i, 133, *E. flagitaria* Gn. i, 133, are one species, *fiscellaria* having the priority. I think *Ellopia? panisaria* Wlk. 163, is synonymous, and Mr. Moffat informs me *E. æqualiaria* Wlk. 164, is also a synonym.

Ellopia pultaria Gn. i, 131, *E. scitata* Wlk. 1510, and *E. invexata* Wlk. 1512, are synonyms of *E. fervidaria* Hbn.

Ellopia athasaria Wlk. 163, *E. siccaria* Wlk. sup. 1547, and *E. seminudata* Wlk. 1508, are the same species.

Mr. Warren places *bibularia* G. & R. and *pellucidaria* G. & R. as synonyms of *E. seminudata* Wlk. 1508. I have not seen the Grote and Robinson types, but taking the figures given Ann. Lyc. Nat. Hist. N. Y., vol. viii, 1867, pl. 15*a*, figs. 8, 9 and 10, *E. bibularia* G. & R. is the same as *E. seminudata* Wlk., but *E. pellucidaria* G. & R. is, as I think, a distinct species. As stated above *E. athasaria* Wlk. is an earlier name than *E. seminudata* for the species.

Ellopia subprivata Wlk. 1509, is a synonym of *Plagodis serinaria* H.-Sch.

Sicya macularia Harr. has as synonyms: *Sicya sublimaria* Gn. i, 105, *S. truncataria* Gn. i, 104, *S. solfataria* Gn. i, 104, *Epione calipusaria* Wlk. 120, and *Epione argyllaria* Wlk. 121.

Aspilates olenusaria Wlk. 1675, is a variety of *A. coloraria* Fab.

Apicia liberaria Wlk. 239, has *Macaria integrara* Wlk. 889, and *A. lintneraria* Pack. as synonyms.

Tephrina unicalcararia Gn. ii, 100, another of the Lorquin insects, is, as a specimen is named in the British Museum, the same as *behrensaria* Hulst. I am as well satisfied with this determination as any, and so it may stand. The insect, however, appears in two quite distinct forms—one rusty ochreous, the other cervinous; the latter may be called var. *behrensaria* Hulst.

Numaria duaria Gn. ii, 135, has as synonyms: *N. hamaria* Gn. ii, 136, *Ellopia amyrisaria* Wlk. 164, *Caberodes agreasaria* Wlk. 252, *Endropia adustaria* Wlk. sup. 1545.

I agree with Dr. Packard as to the synonyms of *Endropia hyperchraria* H.-Sch., viz.: *E. refractaria* Gn. i, 125, *E. lateritiaria* Gn. i, 125, and *E. mestusata* Wlk. 154. To these I add *Azelina fœdaria* Wlk., sup. 1548, and *Macaria? indeclinata* Wlk. 888.

(To be continued.)

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ANT NESTS.

By FREDERICK KNAB.

I have noticed the picture and article, "A Home among the Tree Tops" with interest, and the following observations made about nine years ago on the Amazon may perhaps not be familiar to every one.

Nests, in appearance and size, as described in the above article are very common on the Lower Amazon, only those I examined appeared to be made of mud, and were inhabited by a species of large black ant. Sometimes they are high up in the crotch of a tree; sometimes quite near the ground. Few probably know that the common paroquets rear their young within these ant nests—a most interesting case of intimate relations between widely different animals. The bird drills a hole into the side of the ant-hive, like a woodpecker's in a tree. Inside quite a cavity is scooped out, in which the eggs are laid and hatched out without annoyance from the ants, which continue in possession of their home. It can readily be seen that the ants, who rush forth at

the least disturbance, would be a protection to the helpless young paroquets, but why do the ants suffer these intruders? Once I obtained a set of paroquet's eggs from one of these nests. An Indian climbed up a neighboring tree, and, reaching over with his tercado, broke open the nest—the hole being much too small to introduce the hand—immediately the tree and the ground below was black with ants. The eggs were taken out and caught successfully in my insect net, but not until many of the little demons had buried their jaws in our flesh.

On other occasions I saw the young birds crowded snugly together in their strange home, with beaks wide open for food when they heard one approach. The *Termites*, on the contrary, live in large, irregular, conical mounds, hard as rock, and often ten feet and more high. In the day-time there is no sign of life, but if one enters the forest at night the sight is a beautiful and startling one—the darkness is intense. Here and there in the blackness may be seen clusters of glittering phosphorescent light; these are the *Termite* hills. No doubt the light proceeds from the insects as the particles of the light mass move and change. The light is greenish and soft, and the effect is indescribable. In marked contrast is the glowing red light of the *Elaters* as they dash rapidly through the foliage.

BLAPS SULCATA, a common species in Egypt, is made into a preparation which the Egyptian women eat with the view of acquiring what they esteem a proper degree of plumpness! The beetle they broil and mash up in clarified butter; then add honey, oil of sesame, and a variety of aromatics and spices pounded together. Fabricius reports that the Turkish women also eat this insect, cooked with butter, to make them fat. He also tells us that they use it in Egypt and the Levant, as a remedy for pains and maladies in the ears, and against the bite of scorpions. Carsten Niebuhr also mentions this curious practice of the women of Turkey, and adds, the women of Arabia likewise make use of these insects for the same purpose, taking three of them, every morning and evening, fried in butter.—*Cowan's Curious Facts.*

ON my way to church, Sunday evening, September 9th, I noticed as I approached an electric light which hung over the middle of the street a column of moths projected outward and downward from the lamp for a distance of three feet or more. It was brilliantly illuminated, those farthest away being somewhat in the shadow of those nearer the lamp. Though many were fluttering about outside of the main column, the edges were plainly marked, and it attracted some attention.—H. E. VALENTINE.

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PHILADELPHIA, PA., JANUARY, 1895.

THE SIXTH VOLUME.

WITH the present number the NEWS begins its sixth volume. It is not very old, but its newness is wearing off, and it feels that it has a career, and that it has come to stay. Our efforts have been crowned with success, and there is every reason why the NEWS should still grow and prosper. In the beginning we had our doubts about its life, as it would not have been the first entomological journal to die. We feel that our subscribers and friends have aided us greatly, and it has been this that has encouraged us to do our best for them. We frequently receive kind words in relation to the NEWS, and these words are very gratifying. The journal is to be continued and enlarged if necessary, and we hope to receive efficient support so that this may be done. Why not have a forty page illustrated monthly devoted to entomology? It can be done with your help, and it would be a grand thing. Think of it, four hundred pages a year! Aid us in getting the necessary subscribers and we will do the rest. Tell your entomological friends what we would like to do and we may do it. We wish you all a happy New Year, and feel sure that your interest in natural history will be of benefit to you in many ways; it means relaxation from the cares of life and recreation.

OUR local physician showed me yesterday a lizard about six inches long apparently dried and coated over with wax entirely. He said that it was found in a Bee Tree near here. The bees had coated it over and then built their cells against it and on it. Possibly the lizard intruded on the new colony in the log and they stung it to death and then coated it over to prevent decomposition.—J. T. MONELL.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

PARASITIZED LARVÆ.—Of *Nadata gibbosa*, which generally yield a fair average of normal pupæ, I had negative results this year, 1894. Nineteen larvæ collected late in July produced only one pupa. They reminded me of those promising much and returning little. With *Hyparpax aurora* had better success. Twenty-nine larvæ of first brood yielded ten pupæ, but only one imago emerged in August—the others in all probability going to hibernate. Another collector related to me a similar experience with *H. aurora*.—Dr. R. E. KUNZE.

NOTE ON NEMATUS SALICUM (Ckll.)—A short note appears necessary to clear up the synonymy of this insect. As is explained in Tr. Am. Ent. Soc. xx, pp. 345-346, I described the larva as *Messa salicum*, and Mr. Ashmead later described the imago as *Messa salicis*. Those who maintain the genus *Messa* will probably prefer to call the species *M. salicis* Ashm., but Dalla Torre, in his Cat. Hymenop. vol. i (1894), p. 257, sinking *Messa* under *Nematus*, alters the name of our species to *Nematus salicicola*, because there is a *Nematus salicis* Linné. In view of the previously published named *salicum*, this was unnecessary, and the proper synonymy is apparently *Nematus salicum* Ckll. (= *salicis* Ashm., not L., = *salicicola* D. T.)—T. D. A. COCKERELL.

Mr. WM. H. ASHMEAD, in "Insect Life," vol. vii, No. 1, p. 27, identifies a *Hemerobius* from Mississippi as *H. humuli* Walk.; then, accepting Hagen's doubt as to its identity with the European species of that name, he calls the American specimens *H. gossypii* Ash. But McLachlan, who completely reviewed Walker's Hemerobidæ from the types, says of *H. humuli* (Brit. Neurop. Plan., p. 181), "North American specimens do not differ from the described European form." So, if Mr. Ashmead's species agrees with Walker's form, *H. gossypii* is another addition to the already long list of synonyms of the common *Hemerobius humuli*. *Cæcilius mobilis* Hagen, which was described from a damaged specimen from Cuba, is also recorded by Mr. Ashmead from Mississippi. I doubt if any-

body without a complete collection of Cuban Psocidæ could definitely identify this species from the imperfect description; and to record it from Mississippi I should say was pure guess-work.—NATHAN BANKS.

TRANSLATION FROM PLINY, IN ANTIQUE ENGLISH. The silk-worm.—"They build their nests of earth or clay, close sticking to some stone or rock, in manner of salt; and withall so hard, that scarcely a man may enter them with the point of a spear. In which they make also wax, but in more plenty than bees; and after that bring forth a greater worme than all the rest before rehearsed. These flies engender also after another sort namely, of a greater worme or grub, putting forth two hornes after that kind; and these be certain canker wormes. Then these grow afterwards to be Bombilii, and so forward to Necydali; of which in six months after come the silk-wormes Bombyces. It is commonly said, that in the Isle of Cos there will be certain silk-wormes engendered of flowers, which by means of river showers are beaten downe and fall from the cyprus tree, terebinth, oke and ash; and they soon after doe quicken and take life by the vapor arising out of the earth. And men say, that in the beginning they are like unto little butterflies, naked, but after awhile, being impatient of the cold, are overgrowne with hairs: and against the winter, arme themselves with good thick clothes; for being rough-footed, as they are, they gather all the cotton downe of the leaves which they can come by. for to make their fleece. After this they fal to beat, to felt and thicken it close with their feet, then to card it with their nailes; which done they draw it out at length, and hang it between branches of trees, and so kembe it in the end to make it thin and subtill. When al is brought to this passe, they enwrap and enfold themselves in a round bal and clew of the thread, and so nestle within it. They are then taken up by men, put in earthen pots, kept there warme, and nourished with bran, untill such time as they have wings according to their kind; and being thus well clad and appointed, they be let go to do other businesse."

THE SAUVA ANT.—Dr. Elliot Coues sends us the following extract from a letter which he recently received from Dr. Alfred Alexander, of Minas-Geraes, Brazil, which is well worth publishing:

At Capocabano on the sea-shore just outside of the city of Rio, we had a stable made of planks roughly put together. The Sauva, which were very numerous in the neighborhood, were accustomed to climb up the outside of this structure and to pass between the planks into the manger, whence they came out laden with grains of Indian corn. One day I watched them descending with their loads, and I observed that at a certain entering angle a solitary ant was stationed who had undertaken the duty of helping each separate comer to pass the difficult corner with his load.

The Sauva are very destructive to the coffee trees and strip them of their leaves. This is an acquired habit, for in the wilder parts of the State of Minas (the Sertae) they touch neither coffee trees nor Indian corn, probably preferring other plants. It is remarkable, however, that

in the coffee plantations of the cultivated districts they spare the trees that grow in or near their nests. In this they are like foxes that abstain from molesting neighboring hen-roosts.

A friend of mine, Commendador Pereira, of Rio, tells me that he once witnessed the formation of a living bridge of Sauva ants. The insects arrived at the edge of some running water with their load of leaves, which they deposited on the ground. They then formed a chain, ant holding on to ant, and while the individual at the lower end seized tightly a blade of grass, or some other object at the water's edge, the rest allowed themselves to be floated out by the stream. They were not at first long enough to reach the opposite side and were thus swept round again to the same bank lower down. Other ants now joined to lengthen the pontoon, and the same manœuvre was repeated some two or three times until the outer ant was enabled to obtain a hold on the opposite bank. The bridge constructed, the workers passed over with their loads and then the pontoon-makers cast loose from the first bank and were carried by the current to the second, where, in their turn, they took up their loads and followed their companions. The ants that formed the bridge assumed oblique positions and swam against the stream. I made a careful note of Pereira's statement, but I have met with no other observer of the same fact. As a general rule, the Sauva does not like water, and trees are sometimes preserved from their attacks by surrounding them with a ditch. Nevertheless, Sr. Pereira is a trustworthy man.

HAVING been connected with the Gipsy Moth Commission for the past season of 1894, perhaps some of the readers of the NEWS, would like to know the routine of this gigantic work. Prof. Howard, the United States Entomologist, paid a visit in the Summer to Malden, the headquarters of the Agricultural Department Massachusetts Gipsy Moth Commission, and spent a day or so, looking over the work with some of the officials, and I see in "Insect Life," vol. vii, No. 2, he speaks of this work as "one of the most remarkable pieces of work in economic entomology." A territory covering a space of about one hundred square miles is infested with the Gipsy (*Ocneria dispar*). Three hundred and twenty-five thousand dollars have already been appropriated, and nearly all spent. The confidence of the Massachusetts people seems to be doubtful, but any one knowing the fearful ravages that have been created by such a voracious caterpillar as the Gipsy, and seeing the work carried on as I have, cannot help but be most favorably impressed with the admirable manner in which the attack has been made upon this insect, and the grand results accomplished. Sorry, indeed, will the people of the State be should they stop it, and it will be almost criminal upon the part of those having the legislative power, should they discontinue it, for the money already spent will be deliberately thrown away, and the Gipsy caterpillar will, in a few years, be beyond the control of the nation. It would soon be out of the State, and into all the surrounding States, creating a havoc from which the people would not soon get over, for just as soon as the State drops this work

then provisions of all and every kind will be so high that the people will come upon the legislators for such a foolish thing as stopping a work which is in such a condition that it is under control, and if not exterminated, can be brought down to a condition where it can be handled by a small force of men.

The infested territory is divided into three divisions or sections, each division has a superintendent, and he in turn has a force of men under him to cope with the work in his particular territory. He divides his men into gangs, with an inspector or foreman at its head. Over and above the whole is a manager or field director with an assistant, and in the busy caterpillar season they employ other men to oversee and report any negligence of work by the inspector or men. There are some very funny and amusing features connected with it, and some of those contemptable anonymous letter writers. For my part, I have never known any one to write an anonymous letter to be other than a liar and a sneak. In the Winter and early Spring the men destroy the clusters of eggs with creasote and fire, when the larvæ appears they spray with poisoned solutions. Also place bands of burlap around and about the trees, and the men examine these every day and kill by hand the caterpillars which will congregate under them. This is done by means of very course bagging cutting into strips and wound about the trunk of the tree like a bandage, about four or five feet from the ground, so you can readily see what a gigantic undertaking it is, but for all that, it has been and is being done most thoroughly. So how foolish for one day to stop this work because some people who do not know what insects are other than BUGS, and object to the public purse being drawn upon, and yet they, as a rule, are the very ones who do not contribute one cent towards its support, and some of them draw very heavily upon it (the public purse) as so-called legislators.—H. G. WHITE, Malden, Mass.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be limited to twenty-five for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 1894.—A proposed classification of the fossorial Hymenoptera of North America, W. J. Fox.

2. LE NATURALISTE. Paris, Nov. 1, 1894.—Habits and metamorphoses of *Scolia hirta* Schrank, Capt. Xambeu.—November 15th. Diagnoses of American Coleoptera, M. Allard.

3. ENTWICKELUNG DER RAUPENZEICHNUNG und Abhängigkeit der letzteren von der Farbe der Umgebung. Inauguraldissertation zur Erlangerung der philosophischen Doktorwürde, etc. Universität zu Kiel. Von Christoph Schröder. Berlin, R. Friedländer & Sohn, März, 1894. 71 pp., 1 pl.

4. BERICHTE DES NATURWISSENSCHAFTLICHEN VEREINES ZU REGENSBURG, iv, 1894.—Architecture of the Phryganidæ, Dr. O. Hofmann, 1 pl.

5. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, 1894, pt. iii, Oct. 1, 1894.—On the spiders of the island of St. Vincent ii, E. Simon.

6. REVUE BIOLOGIQUE DU NORD DE LA FRANCE, vii, 1. Lille, October, 1894.—Remarks on the organization and comparative anatomy of the last segments of the bodies of the Lepidoptera, Coleoptera and Hemiptera, A. Peytoureau, 7 pls., figs.

7. COMPTE RENDU. L'ACADEMIE DES SCIENCES. Paris, Nov. 5, 1894. —On the formation of new colonies in the lucifugous Termite (*Termes lucifugus*), J. Perez. Defense of the organism against parasites in insects, L. Cuenot.—November 12. Biological observations made on the wandering cricket (*Schistocerca peregrina* Oliv.) during the invasions of 1891, 1892 and 1893 in Algeria, repeated copulation, oviposition, J. K. d'Herculais. On the swarms of *Termes lucifugus*, J. Perez.

8. ACTES DE LA SOCIETE SCIENTIFIQUE DU CHILI, iv, 2. Santiago, Aug. 22, 1894.—The twentieth neotropical *Aspidiotus*, T. D. A. Cockerell.

9. ZOOLOGISCHER ANZEIGER. Leipsic, Nov. 5, 1894. Some words to Dr. C. Hilger [on the abdomen of Coleoptera], C. Verhoeff. Anatomy of the venomous apparatus of the Ichneumonidæ, L. Bordas.—November 19. E. Schmidt's labial palpi, Dr. N. Leon. A new developmental stage of *Polydesmus*, Dr. C. Verhoeff.

10. BOLETIN DE LA ACADEMIA NACIONAL DE CIENCIAS EN CORDOBA, xiii, 2. Buenos Aires, July, 1893.—Argentine Dipterology: Chironomidæ, F. L. Arribalzaga.

11. JAHRBUCHER DES NASSAUISCHEN VEREINS FUR NATURKUNDE, xlvii. Wiesbaden, 1894.—Contributions to the biology of the Noctuæ, W. Caspari 2nd. Biological notes on *Acronycta alni* id.

12. THE CECROPIAN. (Monthly report of the Henry Edwards Entomological Chapter of the Agassiz Association.) Edited by the secretary [William L. W. Field]. Milton, Mass. Published by the Chapter, November, 1894.—A list of butterflies captured at Hartford, Conn., S. N. Dunning. A list of butterflies of Guilford, New Haven County, Conn., W. L. W. Field and D. G. Field. A list of the Lepidoptera-Rhopalocera

of east, west and south Bridgewater, Mass., W. L. Tower. A partial list of Lepidoptera observed at Salem, Columbiana County, Ohio, M. L. Barker. Printed by a duplicating process.

13. A TEXT-BOOK OF INVERTEBRATE MORPHOLOGY by J. Playfair McMurrich, M.A., Ph.D. Professor in the University of Michigan. New York, Henry Holt & Co., 1894, pp. viii, 661; 291 figs. Arachnida pp. 435–468. Tracheata pp. 469–530.

14. JENAISCHE ZEITSCHRIFT FUR NATURWISSENCHAFT, xxix, 1, Sept. 20, 1894.—Contributions to the phylogeny of the Arachnida: on the position of the Acarina; the so-called Malpighian vessels and the respiratory organs of the Arachnida, J. Wagner.

15. THE JOURNAL OF THE CINCINNATI SOCIETY OF NATURAL HISTORY, xvii, 3, October, 1894.—Studies of the development of *Fidia viticida* Walsh, with descriptions of one new genus and two new species of Hymenoptera by W. H. Ashmead, F. M. Webster, 1 pl. The preparation and care of insect collections, C. Dury.

16. ARCHIVES DES SCIENCES PHYSIQUES ET NATURELLES (3), xxxii, 10. Geneva, Oct. 15, 1894.—Polymorphism and ergatomorphism of ants, Dr. A. Forel.

17. THE ENTOMOLOGIST'S RECORD. London, Nov. 15, 1894.—Random notes on *Zygæna exulans* and its varieties, J. W. Tutt. Portrait of the members of the Lancashire and Cheshire Entomological Society.

18. THE KANSAS UNIVERSITY QUARTERLY, iii, 2. Lawrence, Kans., October, 1894.—The prothorax of butterflies, May H. Wellman, figs. American Platypezidæ, W. A. Snow, 1 pl.

19. JOURNAL DE L'ANATOMIE ET DE LA PHYSIOLOGIE, xxx, 5. Paris, September-October, 1894.—Contribution to the study of the sub-intestinal nervous system of insects, A. Binet, 4 pls.

20. THE BRITISH NATURALIST. London, Nov. 15, 1894.—Some curious aquatic larvæ, G. Swainson, 1 pl. The sexual distinctions of insects, C. W. Dale. Synonymic list of the genera and species [of British Araneidea], with synonyms of the latter (cont.), Rev. F. O. Pickard-Cambridge.

21. THE AMERICAN MONTHLY MICROSCOPICAL JOURNAL, xv, 11. Washington, November, 1894.—Keys to the genera of Pediculidæ and Mallophagidæ, H. Osborn.

22. ARCHIVES DE ZOOLOGIE EXPERIMENTALE ET GENERALE (3). ii, 3. Paris, 1894.—Studies on the heart of some Orthoptera (preliminary communication), A. Kowalevsky. Preliminary note on the distribution of the sexes in the cells of the wasp, P. Marchal.

23. NATURWISSENSCHAFTLICHE WOCHENSCHRIFT. Berlin, Nov. 25, 1894.—The protection of animals in nature, Dr. F. Kienitz-Gerloff, figs.

24. KNOWLEDGE. London, Dec. 1, 1894.—The glow-worm, E. A. Butler, figs. The industry of insects in relation to flowers, Rev. A. S. Wilson. The web of the garden spider, E. A. Butler, fig.

25. PSYCHE. Cambridge, Mass., December, 1894.—Convergence and pœcilogony among insects, A. Giard (transl. from Compt. Rend. Acad. Sci. Paris, by H. Osborn). A cone-like Cecidomyiid gall on Bigelovia, C. H. T. Townsend. Preparatory stages of *Sphinx vashti* Strecker, H. G. Dyar. A check-list of African Coccidæ, T. D. A. Cockerell. Notes upon *Toxoneuron*, W. H. Patton. Notes on the Orthoptera of Penikese and Cuttyhunk, A. P. Morse.

26. MEMOIRES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, ii Brussels, 1894. The Melolonthidæ of the palæarctic and oriental regions in the Royal Museum of Natural History in Brussels, E. Brenske.

27. ANNALES of the same, Nov. 3, 1894.—Revision of the species of the genus *Rhaphidorrhynchus* Schoenherr, A. Senna.

28. THE ENTOMOLOGIST. London, December, 1894.—The North American species of *Ingura*, J. B. Smith. On a *Lecanium* from Rochester, N. Y. (U. S. A.), considered identical with *L. juglandis* Bonché, T. D. A. Cockerell. Notes on "assembling," with some general remarks on the senses in Lepidoptera, J. Arkle. On *Parnassius phœbus* (Fab.) = *delius* (Esp.) and *P. sminthcus* (Doubleday), J. Watson. Additions to the list of British Lepidoptera during the past ten years, Anon.

29. THE ENTOMOLOGIST'S MONTHLY MAGAZINE. London, December, 1893.—The British species of the genus *Psyche* and its allies (cont.), C. G. Barrett. The new "nickel pin," H. G. Knaggs.

30. REPORTS OF OBSERVATIONS AND EXPERIMENTS in the practical work of the Division, etc., U. S. Dep't Agric. Div. Ent. Bull. No. 32. Washington, 1894.—Report on injurious insect in Nebraska and adjoining districts, L. Bruner. Report on some injurious insects of California, D. W. Coquillett. Report of entomological work in Oregon and California; notes on Australian importations, A. Koebele. Report on the insects of Missouri for 1893, M. E. Murtfeldt. Insects of the season in Iowa in 1893, H. Osborn. Report on insects injurious to forest trees, A. S. Packard.

31. INSECT LIFE, vii, 2. Washington, October, 1894.—[Received at Philadelphia, Nov. 20, 1894]. Sixth annual meeting of the Association of Economic Entomologists: A brief account of the rise and present condition of official economic entomology, L. O. Howard. Bisulphide of carbon as an insecticide, J. B. Smith. Report of committee on coöperation among station entomologists. Spraying without a pump—preliminary notice, J. M. Aldrich. Notes on insecticides, C. L. Marlatt. Some observations on new and old insecticides and their combination with fungicides, B. T. Galloway. Spraying with arsenites *vs.* bees, F. M. Webster. Economic entomological work in the parks of New York city,

E. B. Southwick. The wood leopard moth in the parks of New York city, id. Work in economic entomology at the University of Kansas for the season of 1894, F. H. Snow. Notes on some discoveries and observations of the year in West Virginia, A. D. Hopkins. The eastern occurrences of the San José scale, L. O. Howard. The San José scale in New Jersey, J. B. Smith. Mealy bugs and their allies, G. C. Davis. The pear-tree Psylla in Maryland, C. L. Marlatt. Notes of the year in New Jersey, J. B. Smith. Special economic insects of the season, G. C. Davis. Additional notes on the strawberry weevil, its habits and remedies, F. H. Chittenden. Notes on the insects of north Idaho, J. M. Aldrich. Insects of the year, F. M. Webster. Notes from N. Mexico, T. D. A. Cockerell. Some experience with mosquitoes, H. E. Weed.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes new North American forms.

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Doings of Societies.

PHILADELPHIA, Dec. 11, 1894.

A stated meeting of the Feldman Collecting Social was held this evening at the residence of Mr. H. W. Wenzel, 1509 S. Thirteenth Street. Members present: Messrs. Seeber, Dr. Castle, Johnson, E. Wenzel, Boerner, H. W. Wenzel, Fox and Schmitz. Honorary members: Prof. John B. Smith and Dr. Henry Skinner; visitor, Mr. C. H. Roberts. Meeting called to order at 9.30 P.M., vice-president Seeber presiding. Mr. Roberts read the introduction to his paper on the genus *Dineutes*, also exhibiting his collection of the same, together with a number of sketches illustrating some of their characteristics, stating that his collection represented all the known species, also containing two new species, *nigrior* and *hornii*. In concluding this interesting communication he said the paper would be completed for publication very shortly. By request he also explained his method of collecting *Elmis*. He used for the purpose a piece of cheese cloth about 2 x 2 feet long, which is spread across the stream, two ends of the cloth being weighted down, then disturbing the bed of the stream a few feet above; this causes the *Elmis* to cling to the cloth as they are washed down stream. To demonstrate the usefulness of this plan he stated where he had, on one occasion, in agitating a space of about three feet, noticed that they accumulated so rapidly that they began to immediately wash off; he at one gathered up the cloth and began counting them; when his count reached about 700 specimens he tired and quit; this find occupied one and a half hours. Upon being questioned regarding the number of species in a find, he stated they generally represented from three to five. This was followed by a discussion as to the best method for freeing specimens from grease and retaining the color. It was generally conceded that first immersing them in hot water and then in gasoline had been generally found the most satisfactory.

Mr. Fox made some remarks, accompanied by black-board sketches, on the genus *Crabro*, on which he has been working, preparatory to monographing the species. Firstly, *Crabro* may be divided into two sections or divisions, by the sculpture of the mesopleuræ and the presence or absence of a crest or ridge on the epimerum mesopleuralis. In the first section the mesopleuræ are simply punctured and their epimerum

never crested; while in the second section the mesopleuræ are always more or less striated, and their epimerum distinctly crested. Ten groups constitute the first section, and are separated on the form of the first abdominal segment, position of ocelli, and shape of pygidium. The old genus *Rhopalum* leads off with the first segment of abdomen petiolate and nodose at apex, followed by several groups, the form of their first segment grading into those groups in which the first segment is sessile with the second. The old genera, *Blepharipus* and *Thyreopus*, end the first section and show their relation to the second section by the presence of a small pointed prominence on the epimerum mesopleuralis at the same point where the crest is situated in the species of the second section. The ♂ antennæ in this section offer excellent characters for separating the various groups, either being simply clavate, non-dentate, or the first four joints of flagellum are strongly dentate beneath; again the sixth joint of flagellum is deeply emarginate at base, and in one or two groups is in addition strongly produced at apex beneath. The fore tarsi of the male is frequently flattened and dilated, while in other groups they are of the usual form. A number of the old species will be reduced to the synonymy, inasmuch as the sexes of one species have in several cases been described under different names, but this reduction will be more than equaled by the addition of the new species. No further business being presented the meeting adjourned to the annex for refreshments.

THEO. H. SCHMITZ, *Secretary.*

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

At a business meeting held Dec. 10, 1894, the following officers were elected to serve for the year 1895:

Director, G. H. HORN, M.D.
Vice-Director, CHAS. S. WELLES.
Recorder, HENRY SKINNER, M.D.
Treasurer, EZRA T. CRESSON.
Conservator, HENRY SKINNER, M.D.
Publication Committee, JAS. H. RIDINGS, C. W. JOHNSON.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

Biological Notes on Some Colorado Coleoptera.*

By CARL F. BAKER.

In the following notes, unless otherwise stated, the locality is to be understood as Fort Collins.

* From the fifth circulating report of the Say Memorial Chapter of the A. A. See ENT. NEWS, vol. v, p. 18.

Hippodamia convergens Guer. and *H. sinuata* Muls.—Parasitized individuals of these species were found adhering to leaves of cabbage during the early part of September. A specimen of *Euphorus sculptus* Cr. emerged from *H. sinuata* on September 20, and from a *H. convergens* on September 28.

Scymnus collaris Mels. (Det. through Riley)—Larvæ found among plant lice on *Oenothera biennis* August 15, produced beetles September 10.

Epilachna corrupta Muls.—The life-history, etc., of the "Bean Beetle" has been quite fully discussed in Bull. 19 of the Colo. Exp. Station. Lima beans are scarcely touched, and some kinds of string beans are not injured nearly as much as others. On August 18, eggs, larvæ in all stages, pupæ and beetles, were found in great abundance.

Hydnocera longicollis Ziegl. (Det. through Riley)—A specimen appeared during July in a breeding-cage containing galls of *Euura s-nodus* which had been collected early in the Spring.

Lema trilineata Oliv.—Larvæ nearly mature were found in abundance on *Physalis virginiana* June 24. These pupated June 30, the beetles emerging July 25.

Saxinis omogera Lac. (Det. through Riley)—A number of cocoons of this species were found under a stone in the foot-hills west of Fort Collins May 20. They were attached to a little stick and looked like buds on a twig. The beetles emerged from June 8 to June 20.

Chrysomela exclamationis Fab.—Larvæ common in the involucres of flowers of *Helianthus annuus* July 24. Began pupating July 27. Beetles emerged September 7.

Chrysomela flavomarginata Say.—Eggs were found on the dead stems of *Artemisia dracunculoides* early in the Spring. May 20 the eggs hatched, the young larvæ feeding freely on the *Artemisia*. Attained imago state in July.

Gastroidea dissimilis Say.—Eggs, and larvæ in all stages very common on *Rumex crispus* May 24. First pupæ appeared May 30, these giving imagos ten days later.

Lina scripta Fab.—Larvæ abundant on young cottonwood sprouts June 29. Beetles began emerging July 11.

Trirhabda convergens Lec.—Larvæ were taken on *Bigelovia*, June 18, at Dolores, by Prof. Gillette. These produced beetles by July 5.

Galeruca marginella Kirby. (Det. through Riley)—Larvæ mining in leaves of *Chenopodium* June 20. Pupated, giving beetles on July 5

Microrhopala vittata Fab.—A very common beetle in this locality. Larvæ mine leave of *Solidago*. May 10 were copulating and depositing eggs. By July 2 patches of the *Solidago* looked white and dead. Beetles began emerging July 19.

Cassida nigripes Oliv. (Det. through Riley)—Larvæ on *Convolvulus sæpium* July 2. Pupated July 9, the beetles emerging July 19. From a pupa a *Tachina* larva emerged and pupated July 12, the fly appearing July 19.

Bruchus fraterculus Horn. (Det. through Riley)—In 1892 a large proportion of the seeds of *Glycyrrhiza lepidota* in many localities were infested by these beetles. On June 6 many beetles made their appearance. There also appeared numerous specimens of three parasites: *Bracon xanthostigma* Cr., *Eurytoma* sp., and a *Pteromalid.*

Mordellistena morula Lec. (Det. through Riley)—Laavæ very common during Winter in stems of *Iva xanthifolia.* Stems gathered April 14 contained pupæ. Beetles emerged May 9 to June 9, and with them numerous specimens of *Cremastus mordellistenæ* Ashm. mss., and *Tetrastichus* sp.

Anthonomus elongatus Lec. (Det. through Riley)—Bred from a very curious polythalamous twig gall on *Bigelovia,* collected at Dolores, June 19 by Prof. Gillette. Beetles appeared July 19. Probably inquilinous in the galls. A large number of parasites of four species were also obtained.

Anthonomus scutellaris Lec.—Reared in considerable numbers from wild plums, the beetles emerging September 3.

Anthonomus squamosus Lec.—Larvæ common in heads of *Grindelia squarrosa* during last of September, beetles emerging during first of Oct.

The parasitica mentioned in the above notes were determined by Mr. Ashmead.

———o———

A NEW PHÆGOPTERA FROM MEXICO.

By W. SCHAUS.

Phægoptera masoni sp. nov.—Antennæ black. Head, collar and thorax orange; a black spot anteriorly on the patagiæ. Abdomen orange; underneath with a lateral and some transverse black bands. Primaries above orange; at the base a large, light gray space, crossed by black veins and containing on the costal margin an orange spot edged with black; a broad, median gray band bordered on either side with black and crossed by black veins; at the end of the cell a broad gray spot extending to the costal margin, and also edged and streaked with black; the outer margin very broadly yellowish, with the veins black. Underneath yellow, with all the markings black instead of gray, and a submarginal black shade. Secondaries above and below orange-yellow. Exp. 70 mm.

Hab.—Jalapa, Mexico.

In the collection of Mr. J. T. Mason, after whom I name this fine species.

———o———

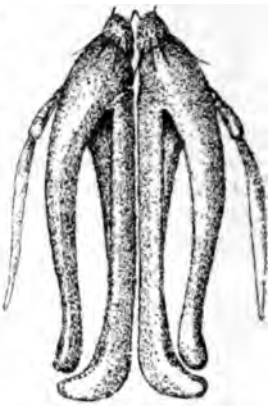
A NEW TACHINID WITH REMARKABLE ANTENNÆ.

By S. W. WILLISTON, M.D.

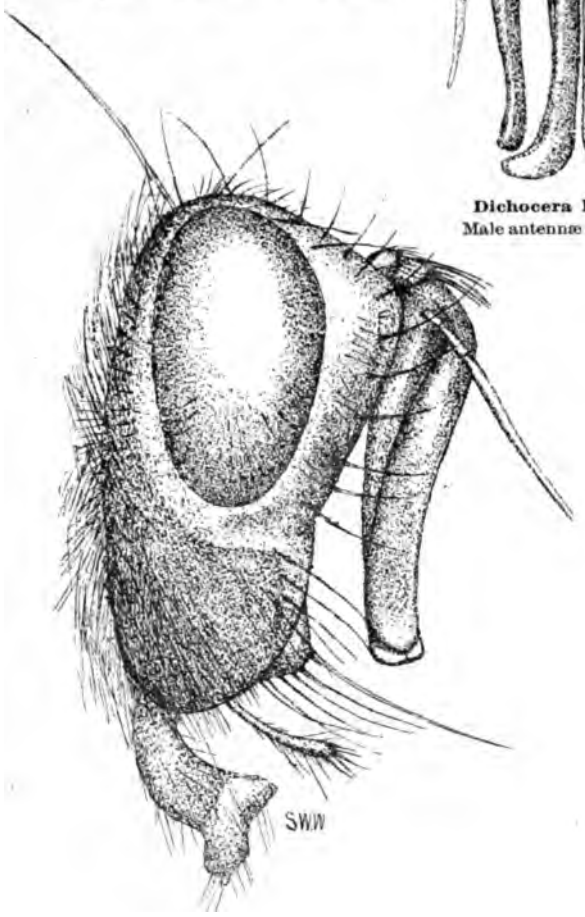
Some years ago* I described, under the name *Talarocera* (which Brauer and Bergenstamm persist in calling *Talacrocera*),

* Entom. Amer. vol. iii, p. 151.

a genus of South American Tachinidæ with remarkably developed antennæ in the male. Very recently I have received from Prof. Aldrich, who is so favorably known for his excellent work in Diptera, a number of specimens belonging to another genus of the same family, the males of which have antennæ quite as remarkable as those



Dichocera lyrata Will.
Male antennæ from in front.



Dichocera lyrata—Head of male.

of *Talarocera*.

I can find no reference to such a structure as is described and figured herewith, and am constrained to regard the specimens as representatives of a new and peculiar genus. Its nearest ally among the described forms seems to be *Nemoræa*, from which, however, the female will be at once distinguished by the much elongated row of frontal bristles and the peculiarly light colored antennæ. It is difficult to describe the structure of the male antennæ in brief language, and I will therefore refer the reader to the figures here given, which have been carefully made. The first two joints are very short, while the third is extraordinarily elongated and split near the base into two nearly equal divisions, the inner one of which is straight and dilated at its tip into a boot-like extremity. The outer branch arises from in front of the base, and is curved outward and then inward, the slightly everted extremity resting upon the toe of the boot. Altogether, the figure shown in front view is not unlike that of a lyre. The arista is attached to the inner branch near its origin, and is very distinctly jointed. The light yellow color of the antennæ adds to their peculiar appearance.

What the function of such a remarkably developed sexual peculiarity is I cannot conjecture. It is in this family, as a whole, that we find the most highly specialized antennæ, and frequently the male antennæ are different from those of the female. In a few instances I have observed the males when at rest alternately raising and depressing the antennæ with a see-sawing motion.

Aside from the antennæ, the structural characters of this fly are as follows:

Dichocera gen. nov. ♂.—Front broad, gently and evenly convex; on either side a row of frontal bristles, which extend down on the sides of the face to opposite the lower margin of the eyes. Two orbital, proclinate bristles present. Eyes oval, their length equal to only a little more than one-half the height of the head; clothed with moderately long, not abundant pile. Face much receding; median excavation broad; sides of the face narrow, bare, except for the row of descending frontal bristles. Cheeks very broad, hairy; near the front part with a vertical row of bristles a little removed from the facial margin. Vibrissal bristles situated almost immediately upon the oral margin. Occipital orbits narrow, with a row of rather small bristles upon the upper half. Palpi slender, slightly thickened at the extremity. Abdomen oval and convex; second segment with a pair of marginal bristles, the third with both marginal and discal bristles. Claws and pulvilli small; first posterior cell narrow and narrowly open, the apical cross-vein oblique, terminating a little distance before the tip

of the wing; the distance from the posterior cross-vein to the angle is not more than a fourth or a fifth of the length of the vein between the cross-veins; angle with a stump of a vein.

♀.—In the female the face is less retreating, the sides are broader, the fovea narrower, the vibrissæ are situated a little distance above the oral margin, the eyes are more sparsely pilose, and the front tarsi are flattened. The two orbital bristles are present, as in the male. The antennæ reach a little below the middle of the face; the third joint is four or five times the length of the second joint, of nearly equal width throughout, and obtusely pointed at the tip. In some specimens the third antennal joint shows a slight projection near the proximal end in front, as though corresponding to a rudiment of the elongated process of the male. The first two joints of the arista are shorter than in the male, and of nearly equal length.

Dichocera lyrata n. sp. ♂♀.—Black; the sides of the front and face, and the narrow inferior orbits gray pollinose, but variable in different reflections, the shining black ground color showing through. Frontal stripe broad, reddish or brownish; cheeks black, not shining, in some reflections showing a brownish pruinosity; clothed with black hairs; near the front part with a vertical row of bristles not far from the facial margin. Antennæ wholly light reddish yellow. Palpi reddish yellow; occiput gray pollinose, clothed with abundant light gray hair. Mesonotum gray pollinose, but variable in different reflections, leaving four distinct, shining black stripes. Scutellum gray pollinose, variable, the apex slightly reddish; its margins with four long bristles. Abdomen shining black, the anterior part of each segment broadly gray pollinose, but very variable in different reflections; distal part of the fourth segment, sometimes nearly all of it and the hypopygium, yellowish red. Tegulæ nearly white. Wings grayish hyaline. Legs wholly black, the middle and hind tibiæ with stout, irregular bristles on the outer side. Length 9–10 mm.

Nineteen specimens (4 ♂, 15 ♀), Idaho, Prof. J. M. Aldrich, June and November.

OBITUARY.

FELIX LYNCH ARRIBALZAGA, the Argentine dipterologist, died on April 10, 1894.

ED. G. HONRATH, on April 19, 1894, in Gross-Lichterfelde near Berlin. Born in Coblenz, Aug. 11, 1837, and was a well-known Lepidopterist.

ENTOMOLOGICAL NEWS for December, 1894, was mailed December 1, 1894.

SAY'S HOME AT NEW HARMONY.

ENTOMOLOGICAL NEWS

AND

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THOMAS SAY.—II.

By Prof. F. M. WEBSTER, Wooster, Ohio.

In 1824, Mr. Robert Owen purchased the lands belonging to the Harmonists, a communistic religious association that had migrated from Butler County, Pennsylvania, in 1815, and under the leadership of George Rapp, founded the village of New Harmony, and were known as Harmonists or Rappites. The village was already established when Messrs. Owen and Maclure, accompanied by Thomas Say, moved there too in 1825. The resident buildings that had been erected by Rapp and his followers have many of them ceased to exist, in 1889, only two being recognizable by their quaint, German architecture, one of them, very fortunately, being the one occupied by Say and his wife Lucy, before they moved into the Maclure house, in which Say died. The building is shown as it appeared a few years ago, but since that time it too has been remodeled and rebuilt, and is not now recognizable. The engraving, however, shows it as when occupied by Say, except that it had once been reshingled. Our knowledge of the daily life of Mr. and Mrs. Say is exceedingly fragmentary, the oldest inhabitants now only remembering

them as middle-aged people, when they were themselves very young. How long they occupied this house I have been unable to learn; quite likely until the health of the naturalist made a removal either more convenient or necessary, and it is probable that within its walls much of the work in preparing his third volume of American Entomology was accomplished, as well as much of his work on American Conchology, six numbers of which were printed at New Harmony prior to his death. In habits he appeared to have here carried his abstinence to excess, and allowed himself only so much and no better food than nature absolutely demanded to sustain life, while taxing himself with labors entirely out of proportion to his state of health and the nature and quantity of his food. Besides his work in the two branches of Natural History, Entomology and Conchology, he was the resident agent of the whole property of the settlement, and as before always ready to give his time and energy to aid such as chose to ask him for his services. Entomologists will here find the causes for his overlooking several species of insects, or at least not mentioning them, though they must have occurred abundantly at the time of his residence in New Harmony, and within a few miles thereof. People now living, who knew him in those days remember him as a mild, unassuming, lovable man, whom to meet was to respect, for his name was synonymous with honor, and his word always the expression of truth. His wife is remembered as a very amiable lady, scrupulously neat in all that pertained to herself or her household, though somewhat given to complaining.

———o———

ABERRATION, VARIETY, RACE and FORM.

By Dr. RODRIGUES OTTOLENGUI.

(Continued from page 11, vol. vi, ENT. NEWS.)

Prof. A. R. Grote writes: The exact limits between "Varieties," "Forms," "Aberrations," have not been absolutely defined. These terms, together with "Dimorphic forms," "Species Darwinianæ," have been employed to designate more or less constant or extensive variation from the type. "Race" and "Form" seem used in the same sense, and are terms applied to variations dependent on locality, the whole species as there occurring, showing some departure from the type. Variation in color or marking when occurring among the typical examples is

variety, and varieties should receive a Latin name. For instance, *Agrotis wilsoni* occurs in a typical olive-gray variety, and in a red variety (var. *specialis*). It does not matter that intermediary examples exist. The terms must be employed in order to designate properly the variety. It is the property of varieties that they intergrade, of species that they do not pass into one another. So with *Agrotis tessellata*. Prof. Lintner once showed me a box full of *tessellata*. A certain proportion were my variety *atropurpurea*. These could be at once picked out and the varietal name is vindicated by the fact. The detection of varieties worthy of the name, is a matter of the tact and experience of the lepidopterist. Cases of small and individual variation should not receive a name. If one is given it should be relegated into the synonymy.

An aberration is an occasional strong divergence, and to receive a name must at least be a remarkable one. The limit between aberration and variety is not clear. Some entomologists only recognize as valid varieties such as they have themselves named. The varieties of other authors they consider synonyms. Staudinger's catalogue attempts a classification of variation.

The whole subject of variation is now engaging the attention of lepidopterists in England, and the works there being published by Mr. J. W. Tutt should be attentively studied by American lepidopterists. The subject is one not finally or fully understood, hence what you have to say will possess a great interest. I may say, in conclusion, that only by breeding from the egg will the true forms appear, and thus the matter may be decided whether a debatable form is a species or a variety.

Mr. Dyar says: I understood by a variety an example of a species differing from the normal form. In the special sense it is a group of individuals like each other, but of less than specified rank. The variety may (*a*) intergrade with the normal form, or (*b*) it may not. In the latter case it is either an aberration, dimorphic form, or a local race. An aberration is a variety that occurs in a single instance or very rarely. I understood "form" to be a general term covering "variety," but not necessarily less than specified rank. I would always name a dimorphic form or a local race. The practice of naming intergrading varieties can so easily be carried to extremes that I do not like to advise it. As to aberration when distinct and of quite different appearance

from the normal form a name may be desirable, but on the whole I do not like the practice. I would never name a "form" as such. If possible decide whether it is a (1) species, (2) dimorphic form, (3) race, (4) intergrading variety, or (5) aberration; (named in the order of importance). From a simple specimen it would be impossible to tell to what rank to assign it, except by analogy with other species in the genus. If it comes from a locality where the normal form was known it could not be a race; the exact location could only be determined by breeding.

Mr. B. Neumoegen replies as follows: This is in reply to queries about variety, form, and aberration. The true sequence should be—1st, what you call form; 2d, aberration; 3d, variety or variation. There is no such thing to my knowledge as "form;" you probably mean "race" by it.

In our (Neumoegen and Dyar) preliminary revision of the Bombyces of N. A. (Journal of N. Y. Entomological Society) we say "Local forms breeding true to type, but differing in no great extent from the ground form are classed as races, whether connected by intergrading forms in the intermediate territory or not. Since the difference between the local race, or local species may be a matter of degree only." The forms are placed according to our present judgment, and may be differently classed by other authors. We recognize seasonal, dimorphic forms, in a few instances. All the varieties referred to by us, are supposed to inhabit the same territory as the typical form, and not to breed true to type. We have not considered aberrations as distinct from varieties. This will give you the key to the question, and I therefore answer,—

First comes the ground form, or the typical insect.

Second the race, being a local form, differing in no great extent from the ground form.

Third the aberration, totally varying in appearance from the ground form, but not denying the main typical characters, and to be found only in single or very few specimens at any time or place.

Fourth, the variety, which is not breeding true to type and varies in appearance, but which remains true in this appearance in any number or quantity of insects, and shows conclusively that varieties are the precursors of coming species. They are

the faithful agents of evolution and the future student who may take up the difficult task, by aid of fossils, of trying to explore the original species may be able to find out how many varieties have formed into good species, in the course of centuries.

Dr. Henry Skinner writes thus: Your questions are great puzzles, and have been agitating the scientific mind for years, and volumes have been written on the subject, and yet nothing definite or fixed has been accomplished. I doubt whether absolute definitions can be given for the terms you mention as the whole thing is one of individual opinion. Of course you do not expect me to write a treatise on the subject, and I will give you my ideas in a very brief way.

The three terms are gradational, and represent individuals, more or less removed from the specific form. The greatest deviation in structure is a monstrosity. The next farthest removed is an aberration, the next a form and the least removed a variety. I would define an aberration as a well-marked deviation, occurring at rare intervals such as *Vanessa antiopa lintneri*. I think the word form should be limited to well-marked deviations which are either sexual, seasonal or geographical; as illustrations of the sexual class I would cite *Papilio glaucus*, and the white forms of *Colias*. Of the seasonal the forms of *Papilio ajax;* of the geographical, the female insular forms of *Papilios* found in the East India islands, etc.

Under the head of varieties I would put the least deviations or those not comprised in the first two classes.

In regard to the other question I think it would be best not to name varieties when there is no question as to what the species is.

Prof. Packard replies: A variety is usually regarded as an incipient species not yet fixed, but varieties are of different value in different groups and species. The word form, is a general one, to denote a species or variety, or even a genus. An aberration is an abnormal specimen not generally subject to heredity; it is a sport. I should not give a name to either of these if I could possibly help it, but a name may be given to a variety if it is a local or climatic one, such as appear year after year in one place. Under such circumstances it is well to give a name, a local one. But one should try to keep synonyms down, not multiply scientific names, as they are a grievous burden to science.

Many are repelled from the study on account of the burdensome nomenclature.

One would have to use his judgment in deciding what is a new variety, form or aberration. A beginner or an amateur should not publish new names without using great care, or feeling sure he is correct. Skill in detecting varieties, etc., comes with experience, and the best of all make mistakes. I think careful, conservative views should prevail, and I hope you will inculcate these virtues in young students; and I think it much better for them to give their time to studying the habits, structure and transformation of insects than to collecting and describing supposed new species.

* * * * * * *

Thus we find that quite a diversity of opinion exists among well known students, and I can scarcely hope that my own views will be convincing, though it would be very good if some definite meaning could be assigned to what, after all, would strike the beginner as being elementary terms.

In looking over the above letters the point that seems most worthy of discussion is that relating to intergrades.

Dr. Hulst describes Variety thus: "Forms distinct, but intergrading more or less in any locality."

Prof. Smith says that a variety does not breed true, but occurs in reasonable proportion independently of season or locality. Then he continues: "It is to be understood also that there is no regular succession of intermediate forms between this variety and the usual form. Where a range of intermediate forms exists I would not consider the extreme entitled to a name."

(To be continued.)

———o———

Relationship of Pyralidæ and Pterophoridæ from the Larvæ.

By HARRISON G. DYAR.

In connection with the controversy on these groups, started by Mr. Tutt, I would like to present to the readers of the NEWS an outline of a system of classification based on the larvæ. This will be presented more fully elsewhere, but in this place its bearing on the relationships of the Pyralidæ and Pterophoridæ may be of interest.

Accepting Prof. J. H. Comstock's division of the Lepidoptera

into the suborders Jugatæ and Frenatæ, I would divide the latter into six superfamilies on the arrangement of the tubercles of the larvæ In response to a tendency for these tubercles to be arranged in a single transverse row, tubercles iv and v have become consolidated into one in the first three superfamilies, and later tubercles i and ii have been likewise united, or else tubercle ii disappears. In the three highest families the tubercles have tended to form two alternating rows. According to these characters the superfamilies separate as follows :

Tubercles iv and v approximate or consolidated.
  Tubercles i and ii remote . . . . . MICROLEPIDOPTERA.
  Tubercles i and ii consolidated . . . . . ANTHROCERINA.
  Tubercles i and ii remote, ii disappearing at the first moult. BOMBYCINA.
Tubercles iv and v remote.
  Tubercle iv behind the spiracle, v below it . . . . . NOCTUINA.
  Tubercle iv below, v in front of spiracle . . . . . SPHINGINA.
  Tubercles iv and v in line, except in some Nymphalidæ, where secondary armor is developed . . . . . RHOPALOCERA.

The MICROLEPIDOPTERA include the Psychidæ, Cossidæ, Pyralidæ, Tortricidæ, Sesiidæ, Tineidæ and Lacosomidæ; the ANTHROCERINA the Pterophoridæ, Anthroceridæ, Pyromorphidæ, Megalopygidæ and Eucleridæ; the BOMBYCINA the Citheroniidæ, Hemileucidæ,* Saturniidæ* and Bombycidæ; the NOCTUINA the Notodontidæ, Thyatiridæ, Geometridæ, Drepanidæ, Agaristidæ, Noctuidæ, Cymbidæ, Lithosiidæ, Pericopidæ, Arctiidæ, Euchromiidæ and Lymantriidæ, and perhaps also the Thyridæ, Dioptidæ, Brephidæ and Lasiocampidæ† ; the SPHINGINA the Sphingidæ, and the RHOPALOCERA the families usually associated under that term.

Thus, from the larval characters which I use, the Pyralidæ and Pterophoridæ are placed in two separate, but closely allied superfamilies. I see no reason for giving the families the superfamily ending as has been done recently. I regret that I have not seen the larva of Orneodes, so I cannot throw any light on the position of the family it represents. However, if Dr. Hulst had read carefully Dr. Chapman's really good articles (to which Mr. Tutt refers) I think he would appreciate better the force of the argu-

* Not in the sense used by Prof. Smith. My classification corresponds more nearly with that of Grote's Check List 1882.

† These I have not examined sufficiently. The Lasiocampidæ will probably form another superfamily.

ment from the hooks on the prolegs. The character referred to is supposed by Dr. Chapman to offer a positive diagnosis between micro- and macro-heterocera (*i. e.* the complete ring of hooks is characteristic of the Microlepidoptera as here set forth). As a matter of fact, there are certain exceptions* which vitiate Dr. Chapman's generalization, though it is certainly true in the great majority of instances.

Science is cosmopolitan, and it must appear that Dr. Hulst has allowed himself to be carried too far by his enthusiastic Americanism.

———o———

NOTES ON TYPES OF NORTH AMERICAN GEOMETRINA IN EUROPEAN COLLECTIONS.—III.

By GEO. D. HULST.

(Continued from page 15, vol. vi, ENT. NEWS)

The type of *Endropia warneri* Grt. is in the Museum. It is not an exact counterpart of *E. apiciaria* Pack., though the same species. The outer line is more bent than in *E. apiciaria*, and it thus makes an approach towards *E. hypochraria* H.-Sch.

Endropia astylusaria Wlk. 152, *E. madusaria* Wlk. 153, *E. oponearia* Wlk. 153, *E. tiviaria* Wlk. 250, are the same. In this case, as in the most of others to which I make reference in these notes, there may be much variation of appearance. The synonymy, as I express it, is intended to be my view of specific relation only. Mr. Warren puts *E. vinulentaria* G. & R. as a synonym, but with this opinion I do not agree.

Endropia tigrinaria Gn. i, 149, *E. propriaria* Wlk. 249, are the same as *E. obtusaria* Hbn. I believe *Clysia decisaria* Wlk. 47, is the same also.

Endropia deductaria Wlk. 151, is a synonym of *E. pectinaria* Den. & Schif.

Endropia effectaria Wlk. 1504, is a good species.

Probole amicaria H.-Sch. will have the following standing under it: *P. alienaria* H.-Sch., *Hyperetis nyssaria* Gn. i, 118, *exsinuaria* Gn. i, 118, *H. persinuaria* Gn. i, 119, *H. insinuaria* Gn. i, 119, *Macaria laticincta* Wlk. 885, *Azelina neonaria* Wlk. 186, *Selenia æsionaria* Wlk. 183, and *Hyperitis nepiasaria* Wlk.

* Some Pyralidæ have the circle of hooks incomplete. The Drepanidæ have a complete circle, but the outer half is different from the inner (secondary ?).

146. The latter is a very distinct variety, but not entitled to specific rank.

Mr. Warren, without knowledge of the types, places *Eubyja quernaria* A. & S., *Synopsia phigaliaria* Gn. i, 225, *Eubyja cupidaria* Grt., *E. mexicanaria* Grt. and *E. pennulataria* Grt., as one species, which is rather wild, to say the least. *Phigaliaria* Gn. and *pennulataria* Grt. are the same, but are very distinct from *quernaria*. *Cupidaria* and *mexicanaria* are also distinct from that species, and from each other. Indeed, in my opinion, these species are not all congeneric.

The type of *Biston virginarius* Grt. is in the Museum. It is unspread, but is a fresh specimen. I could not well examine it under the circumstances. It is much like *B. ursarius* Wlk. 304, but the outer whitish band on the fore wings is broken, and the outer line is strongly dentate.

Amphidasys speratataria Wlk. 307, is a synonym of *Eubyja cognataria* Gn.

Phigalia revocata Wlk. 1527, is the same as *Phigalia strigalaria* Minot. I have no doubt but they are the same as *Phalæna Geometra titea* Cram.

I agree with Dr. Packard in his reference of the Boarminæ of Guenée and Walker. *Boarmia humaria* Gn. has as synonyms *B. defectaria* Gn. i, 247, *B. intraria* Gn., *B. moniaria* Wlk. 345, *B. ephyraria* Wlk. 349, *Phibalapteryx erosiata* Wlk. 1718, *B. albigenaria* Wlk. 348, *B. illaudata* Wlk. 397, *B. transfixaria* Wlk. 347, and *Tephrina expressaria* Wlk. 1657. I have in my notes also *Anisodes? intractaria*, but I have a suspicion I may have made an error.

Tephrosia occiduaria Gn. i, 266, *Boarmia signaria* Wlk. 346, *Tephrosia spatiosaria* Wlk. 403, *B. intrataria* Wlk. 403, and *Tephrosia abraxaria* Wlk. 403, are the same as *B. crepuscularia; abraxaria* is quite a distinct variety, and has been described by me as *fernaldaria*. *Boarmia cineraria* Wlk., 488 is another synonym.

Boarmia sublunaria Gn. i, 248, *frugaliaria* Gn. i, 246, *B. collecta* Wlk. 397, and *B. fraudulentaria* Zell., are *B. pampinaria* Gn. i, 245.

Boarmia indicataria Wlk. 346, *B. filaria* Wlk. 347, and *B. polygrammaria* Pack. are the same.

Boarmia gnopharia Gn. i, 251, is the same as *B. umbrosaria* Hbn., *B. porcellaria* Ab. & Gn. is almost surely the same.

Acidalia sparsaria Wlk. 1596, is one with *Boarmia psilogrammaria* Zell. Here is one instance where Walker is right, and Zeller wrong, as the insect is an *Acidalia*, and has no affinity with *Boarmia*.

A type of *Boarmia plumosaria* Pack. is in the Museum. It is beyond doubt a synonym of *larvaria* Gn. The antennæ are somewhat deceptive in appearance. The ends are broken off, the pectinations are spread out, so they appear lengthily plumose to the end. But it is not the same species figured and described by Packard under this name, nor is it the same as the type in the Cambridge Museum.

Boamria signataria Wlk. 350, *Tephrosia imperfectaria* Wlk. 407, and a specimen marked *T. contribuaria* are one with *Tephrosia canadaria* Gn. i, 263.

Boarmia imitata Wlk. 395, is *Tephrosia californiaria* Pack.

Aspilates acidaliaria Wlk. 1684, and *Aspilates infixaria* Wlk. 1685, are the same as *Tephrosia cognataria* Hbn.

Tephrosia submuraria Wlk. 406, is a synonym of *T. anticaria* Wlk. 404. *Boarmia intextata* Wlk. 398 is, I think, the same, and has priority.

Cidaria albifusata Wlk. 1728 is a synonym of *Larentia? exornata* Wlk. 1187.

Aspilates canosaria Wlk. 1674, with *pulchraria* Minot, is a synonym of *Endropia semiclusaria* Wlk. 1501.

Anisopteryx restituens Wlk. 1697, is the same as *A. pometaria* Harr.

Anisopteryx scriceiferata Wlk. is the same as *Paleacrita vernata* Peck.

Melanippe reciprocata Wlk. 1294, is a synonym of *Odezia albovittata* Gn. ii, 520.

Aspilates? ordinaria Wlk. 1068, is the same as *Lozogramma extremaria* Wlk. 984.

Cidaria? gibbocostata Wlk. 1388, and *Larentia costinotata* Wlk. 1701, are the same as *Marmopteryx strigularia* Minot.

Aspilates intermicata Wlk. 1076, is the same as *A. pervaria* Pack. The type of var. *interminaria* Grt. is in the Museum.

Corycia hexaspilata Wlk. sup. 1653, is a synonym of *Hetherophleps triguttata* H.-Sch.

Macaria? refusata Wlk. 891, is the same as *Heterophleps harveyata* Pack. and antedates it.

Scotosia hæsitata Gn. ii, 444, *S. impanperata* Wlk. 1363, and *Philereme albosignata* Pack. are one species.

A MSS. species, type in the Museum, *Scotosia differens* Warr. is *Triphosa indubitata* Grt. If it be applied to the melanic and suffused form it is then a synonym of *T. pustularia* Hy. Edw. This is the insect identified by Walker as *Scotosia affirmaria* Gn. Can. Nat. v, 264. It is very like that species, but different.

A specimen of *Operophtera bruceata* Hulst, has on it a label, *Anisopteryx remota* Pack. I am not aware that Dr. Packard ever described a species by that name.

Lobophora fuscifasciata Wlk. 1258, *Larentia longipennis* Wlk. sup. 1671, *Scotosia lobophorata* Wlk. 1347, are the same as *Lobophora anguilineata* Grt. Mr. Warren joins as the same species, *L. vernata* Pack. and I incline to the belief that he is right.

Lobophora atroliturata Wlk. 1710, is the same as *L. geminata* Wlk.

Lobophora? nivigerata Wlk. 1259, is a dark form of *L. inæqualiata* Pack.

Phibalapteryx impleta Wlk. sup. 1683, and *P. indoctrinata* Wlk. 1722 are synonyms of *P. intestinata* Gn. ii, 432.

Cidaria luscinata Zell. is the same as *Phibalapteryx latirupta* Wlk. 1684.

Cidaria? frigidata Wlk. 1729, *Larentia? renunciata* Wlk. 1187, and *Ypsipetes pluviata* Gn. ii, 378, are synonyms of *trifasciata*. Mr. Moffat tells me *Cleora divisaria* Wlk. 489, is the same species.

Melanippe gratulata Wlk. 1273, is *M. brunneiciliata* Pack. and has priority.

Petrophora truncata var. *thingvallata*, described, I think, by Stephens, is the insect afterwards described by me as *Cleora atrifasciata*. The Museum specimens are very much smaller than mine, expanding scarcely one-half as much.

Larentia flamifera Wlk. 1184, is *Larentia hersiliata* Gn.

Larenta cerivinifascia Wlk. 1184, is a variety of *populata*. It is very close in appearance to the variety *comma-notata* Haw. *Cidaria remotata* Wlk. 1388, *C. molliculata* Wlk. 1390, *C. propulsata* Wlk. 1389, and *Pelurga similis* Wlk. 1425, are all forms of the same species, the American *populata*, called by Prof.

Lintner *packardata*. The variations are very wide, but are all shown in the set of *populata* in the British Museum.

Cidaria explanata Wlk. 1422, and *C. cunigerata* Wlk. 1726, are, I think, the same species. In *C. explanata* the central band is nearly unbroken.

(To be continued.)

THE typographer-beetle, *Bostrichus typographus*, is so called on account of a fancied resemblance between the paths it erodes and letters. This insect bores into the fir and feeds upon the soft inner bark; and in such vast numbers that 80,000 are sometimes found in a single tree. The ravages of this insect have long been known in Germany under the name of *Wurm troekniss*—decay caused by worms; and in the old liturgies of that country the animal itself is formally mentioned under its common appellation, *The Turk*. About the year 1665, this pest was particularly prevalent and caused incalculable mischief. In the beginning of the last century it again showed itself in the Hartz forests; it reappeared in 1757, redoubled its injuries in 1769, and arrived at its height in 1783, when the number of trees destroyed by it in the above-mentioned forests alone was calculated at a million and a half, and the whole number of insects at work at once 120,000,000,000. The inhabitants were threatened with a total suspension of the working of their mines for want of fuel. At this period these Bostrichi, when arrived at their perfect state, migrated in swarms like bees into Suabia and Franconia. At length, a succession of cold and moist seasons, between 1784 and 1789, very sensibly diminished the numbers of this scourge. In 1790 it again appeared, however, and so late as 1796 there was great reason to fear for the few fir trees that were left.—*Cowan's Curious Facts.*

MANY species of Buprestidæ are decorated with highly brilliant metallic tints, like polished gold upon an emerald ground, or azure upon a ground of gold; and their elytra, or wing coverings, are employed by the ladies of China, and also of England, for the purpose of embroidering their dresses. The Chinese have also attempted imitations of these insects in bronze, in which they succeed so well that the copy may be sometimes mistaken for the reality. In Ceylon and throughout India, the golden wing-cases of two of this tribe, the *Sternocera chrysis* and *S. sternicornis*, are used to enrich the embroidery of the Indian zenana, while the lustrous joints of the legs are strung on silken threads, and form neck-laces and bracelets of singular brilliancy. The *Buprestis alternata*, *ocellata* and *vittata* are also wrought into various devices and trinkets by the Indians. The *B. vittata* is much admired among them. This insect is found in great abundance in China and thence exported into India, where it is distributed at a low price.—*Cowan's Curious Facts.*

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., FEBRUARY, 1895.

A MONUMENT TO THOMAS SAY.

THE interesting articles on Thomas Say now appearing in the NEWS recall the fact that the "Father of American Entomology" has been dead sixty-one years. Much progress has been made in the study during that time, and doubtless Say would be much astonished if he could return to this sphere and see the advancement of the study. Some time ago Mr. Philip Laurent suggested that it would be a very grateful act for the entomologists of America to erect a monument in memory of Thomas Say. We have mentioned this subject before in the NEWS and recalled the fact that the ornithologists of America have erected a monument to Audubon in Central Park, New York. Philadelphia, the birth-place of Say, would be the proper place for such a monument, and it is to be hoped that some day this may be accomplished. It would not be a difficult matter to start a Say monument fund in each of the entomological societies of the country and thus collect the necessary amount. If such a thing were done it would show how much love and pride entomologists have in the study, and it would also show the world at large that there is an important study known as entomology, and that it has many enthusiastic devotees.

TWO PRACTICAL HINTS.—We notice two notes of interest in the "Entomologist's Record and Journal of Variation" for Aug. 15, 1894. Mr. F. J. Buckell writes that flies always pester him "to infuriation," and that he has found that a liberal sprinkling of Eucalyptus oil on his coat collar and face keeps them away. Rev. C. R. N. Burrows, of Rainham, finds that the use of methylated spirit instead of rum for mixing with sugar when sugaring for insects, greatly increases the attractiveness of the mixture.

DEPARTMENT OF EGONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

"Insect Lime."—More properly this should be "insect glue," because the German word is "leim;" but the term "lime" has somehow or other come into quite general use, and will probably be continued. "Raupenleim" is a product of Germany, of a jelly-like consistency, very dark brown in color, with a flavor of carbolic acid in the smell, and is supposed to retain its sticky qualities when exposed to the air, rain, etc., for a period of from two to three months or more. It is used principally to trap insects that crawl up and down the trunks of trees, and its usefulness for that purpose has been demonstrated. It replaces effectually all those devices like tin collars or troughs used for trapping canker worms, and all bands of cotton, paper, or other material wherever they have been recommended. In our own country this material has not been used to any extent except in Massachusetts by the Gipsy Moth Commission, who have found it useful within limits in their work against the Gipsy moth. It is probable that after a time this substance, or some substitute for it, will come into more general use in this country, and if some little modification can be made in it which renders it somewhat more fluid, so that it can be put on with a brush like thick paint, its field will probably be a large one. One of the most difficult classes of insects to deal with are borers, whatever the order to which they may belong. It is rarely that we are able to reach the insects themselves in their burrows, and usually we can only protect our trees by covering them with some substance that is either repellant or forms a mechanical coating. In repellants I have no faith whatever, unless the odor is absolutely poisonous, and then the effect is not due to the odor, but to the poisonous action. Mechanical coatings have been used with more or less success; but they have rarely been complete enough to answer every purpose, and have in most cases labored under the disadvantage of not being persistent in character and requiring renewal at short intervals. Lime in some form has been very largely used, and where the coating was properly kept up with very good success. At the base of trees, like peach trees for instance, newspapers and other similar coverings have been used, and in some orchards I have seen wire mosquito netting used to protect the trunks of the trees from the insects. In this case the object was to keep the adults from getting at the trunk, so that they could not lay their eggs. In the other case there was nothing to prevent the laying of eggs; but the lime, which is often poisoned, would form a sufficient barrier against the very young larvæ; yet all these substances have not been quite satisfactory. The thing that is required or needed, is a substance that is easy of application, that can be put on so as to form an absolutely impenetrable coating, that will retain its properties for at least a month, and that will not be injurious to

the tree. An additional advantage that it should possess, is cheapness. Now, "insect lime" possess some of those advantages, and may perhaps be modified, so that it may possess all of them. It has been proved by use in Germany to be absolutely harmless to plants, and I am informed that the trunk of a moderately large growing tree may be entirely coated with this substance without in any way endangering the tree itself. The outer bark in large trees possesses no functions necessary for the continued growth or development of the tree, and covering with any viscid substance which is not poisonous would not injuriously influence its growth. The line of insects against which such an application could be used is large; for instance, all peach trees could be protected against the attacks of the borer. It would not only prevent the moth from laying its eggs, but if she alighted on the trunk covered by this "lime" the chances are that she would be caught and remain sticking to it. Apple trees could be protected against the *Saperda* in much the same way. Pear trees could be protected against the attacks of *Scolytus*, and of course other trees as well where they are subject to the attacks of these insects. A coating put on early in the Spring before the leaves start would absolutely prevent the emergence of any insects in the bark on the trunk, would prevent the hatching of any eggs, and would prevent all insects lying dormant in the crevices from making their way out. This would be an especially useful thing in the case of the Pear Psylla for instance, that hibernates in the crevices of the bark on the trunks of pear trees, and if the application was made early enough to inclose the insects and prevent them from coming out injury for the balance of the season need not be feared. In fact, the number of uses to which a substance of this kind could be put is very great, and the suggestion is made here in order to induce entomologists, as well as farmers and horticulturists, to test this substance during the ensuing season. The American agents for the "insect lime" are Wm. Menzel & Son, 64 Broad St., New York City, N. Y.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

DURING my weekly vacation this year I went to Cumberland, the northern part of the State, and got about one hundred specimens, mostly

Lepidoptera. In luring I did not catch much, except Catocalæ, the smallest Noctuidæ did not seem to be represented at all. I think the electric lights have diminished insects to a great extent; before we had them round us I could find *Cecropia* cocoons in my yard, and for the past year or two I have not found them nearer than a mile and a half of the city limits. The *Anisota senatoria* used to be very destructive to shrub oaks round here, but this year I could not find but one or two trees that had been eaten by them. In walking to my place of business I always look under the electric lights, but very seldom find anything worth picking up.—EDWARD D. KEITH, Providence, R. I.

TARDINESS OF IMAGINES from first brood reared north and emergence of second brood of pupæ in Autumn. Of a lot of *Smerinthus geminatus* bred from ova, Aug. 3, 1894, which transformed within four weeks, a large number imagines appeared, fully eighty per cent., between September 18th and 29th. Of a number of collected larvæ of *Paonias myops*, second brood also, which pupated last week of August, several of the perfect insects emerged during latter half of September. Usually, these are exceptions to the general rule. Stranger behavior occurred among *Ceratomia catalpæ*. Larvæ collected south, raised here, which pupated between June 12 and 19, 1894, with the exception of two or three imagines, refused to come out. An equal number of larvæ bred from the very same lot of first brood down south, which pupated same time, and were shipped north, almost the entire number emerged before July 20th. Perhaps a four-days' travel in the mail-bag, during a heated term, hastened matters.

Dr. R. E. KUNZE.

DO INSECTS PLAY?—Under the title "The habit of amusement in the lower animals," Mr. James Weir, Jr., in "The American Naturalist" for October last, brings together a number of observations which he considers as bearing upon the thesis that certain of the lower animals play. The insect instances advanced are: first, the dancing in swarms of certain midgets. He does not consider these swarms as mating swarms, since on numerous occasions and at different seasons of the year, he has examined dozens and found them all to be unimpregnated females; he never discovered a male among them. Further, he refers to the observations of certain naturalists upon ants, showing that when these insects assemble upon the surface of their nests, they sometimes behave in a way which can only be explained as a simulation of festival sports or other games. He has also observed a flea play what he considered to be a practical joke upon an individual of the same species, and he has also seen certain female Coccinellids indulge in "true psychical amusement." There is room for additional observations in this interesting field, but it is one in which the observer is very apt to jump to unjustified conclusions.

ON ANT STINGS.—Mr. Herbert H. Smith, in an interesting letter recently received, writes as follows concerning the stings of S. American ants:

"Among the worst of stinging insects are ants; the large *Poneras* (or *Monopera?*) sting worse than a hornet. My wife was once stung by a dozen or so. She had fever in consequence and was kept awake for a whole night. The Mundurucu Indians of the river Tapajos have a unique test which, as is well attested, young men endure before they take a wife. They fill basket-work bags with the Ponera ants and thrust their arms in them to the shoulder. Sometimes with the bags tied on their arms they dance through the village. After the test the man throws himself in a stream, remaining there for hours, but this does not prevent fever. The foraging ants (*Eciton*) sting painfully and attack everything in their way. The little "fire-ants" (*Myrmica*), to my knowledge, have sometimes depopulated villages; for instance, the village of Aveyros on the Tapajos, now re-peopled. This village, which I saw, was one vast nest of the ants. A single sting is insignificant, but when a thousand ants attack you at once, the matter becomes formidable. The *taixi* tree of the Amazon takes its name from a little ant always found on it, which, for its size (about one-fourth inch long), is the most terrible insect I know of; the sting is like a red hot needle. I do not know the genus."

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be limited to twenty-five for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. LA NATURALEZA, ii, 5. Mexico, 1893. [Received Dec. 17, 1894.] —A new species of *Lecanium* from Mexico, T. D. A. Cockerell.

2. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, December, 1894.—The dates of Moore's "Lepidoptera Indica," C. D. Sherborn.

3. THE PROCEEDINGS OF THE LINNEAN SOCIETY OF NEW SOUTH WALES (2), viii, 4. Sydney, June 5, 1894.—A second note on the Carenides, with descriptions of new species, T. G. Sloane. Note on the occurrence of *Icerya ægyptiacum* Dougl. in New South Wales, W. W. Froggatt—ix, 1, Sept. 4, 1894. On the nests and habits of Australian Vespidæ and Larridæ, W. W. Froggatt. On the life-histories of Australian Coleoptera—ii, id. Note on the discovery of a destructive Floridian Coccid (*Icerya rosæ* Riley and Howard) near Sydney, W. W. Froggatt.

4. SITZUNGSBERICHTE DER KAIS. AKADEMIE DER WISSENSCHAFTEN. Math.-Naturwiss. Classe. cii, 10, Abt. i, Vienna, December, 1893. [Re-

ceived Dec. 17, 1894]—Monograph of the digging wasps allied to *Nysson* and *Bembex*, A. Handlirsch, 7 pls.—ciii, 1-3, Abt. i, January-March, 1894. The copulatory feet of the Polydesmidæ, C. Attems, 4 pls.; ciii, 1-4, Abt. iii, January-April, 1894. Researches on the physiology of facetted eyes, A. Kiesel, figs., 1 pl.

5. PROCEEDINGS OF THE NEBRASKA ACADEMY OF SCIENCES, iv, pp. 16-22. [Lincoln], 1894.--A list of Nebraska butterflies, H. G. Barber.

6. ATTI DEL R. INSTITUTO VENETO DI SCIENZE, LETTERE ED ARTI, li, 7. Venice, June 18, 1893. [Received Dec. 17, 1894.]—Description of and proposals for combatting *Diaspis pentagona* Targ. Tozz., G. Canestrini, P. A. Saccardo and A. Keller.

7. THE TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1894, pt. iv, December, 1894.—A monograph of British Braconidæ, pt. v, Rev. T. A. Marshall, 2 pls. Catalogue of the Pterophoridæ, Tortricidæ and Tineidæ of the Madeira Islands, with notes and descriptions of new species, Rt. Hon. Lord Walsingham. Palæarctic Nemouræ, K. J. Morton, 2 pls. Supplementary notes on the Scolytidæ of Japan, with a list of species, W. F. H. Blandford. Some remarks on the antennæ of insects, C. O. Waterhouse.

8. LE NATURALISTE. Paris, Dec. 1, 1894.—The nymph of *Batocera rubus*, L. Planet.

9. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE FRANCE, lxii, 1. Paris, July 31, 1893. [This and other parts received Dec. 18, 1894.]—Revision of the species of the genus *Phlœophthorus* Woll. and description of a new genus of Scolytidæ, F. Guillebeau. Note on some ants of the Galapagos Islands, C. Emery, fig. Remarks on *Bembex*, P. Marchal. Note on the production of sounds by ants and on the organs which produce them, C. Janet. Note on larvæ of *Dermatobia* from Brazil, Dr. R. Blanchard.—2. Oct. 25, 1893. European and circum-Mediterranean Scydmænidæ, J. Croissandeau, 2 pls. (cont. in 4e Tri.) Descriptions of new species and genera of the order Araneæ, E. Simon (cont. in 3e Tri.). Biological observation on *Timarcha generosa*, P. Lesne. Note on the organ called spatula sternalis and on the Malpighian tubes of Cecidomyia, A. Giard, figs., [and farther in the volume], Dr. A. Laboulbene. Comparative study of the development of the egg in the viviparous and oviparous fleas, Dr. V. Lemoine. A method of destroying hornets, Dr. F. Heim. Attempts at the destruction of *Cossus ligniperda*, id. Habits and metamorphoses of *Molytes coronatus*, J. Fallou. Contributions to the natural history of the larvæ of Buprestidæ—the first larva of *Julodis onopordi* F., J. K. d'Herculais, figs. Contributions to the study of parasitic Diptera, Dr. R. Blanchard, figs. Note on some types of Diptera of the family Bibionidæ, C. Brongniart. On a Coleopterous larva vomited by an infant in Senegal, Dr. R. Blanchard, figs.—3. Dec. 30, 1893 (see E. Simon above). Biological observations on the Crabronidæ, P. Marchal, 1 pl. Observations on the galls produced on *Salix babylonica* by *Ne-*

matus salicis, followed by some reflections on the importance of phenomena of cecidiogenesis for biology in general, Dr. F. Heim. On the pigmented organ (embryonic testicle) of the caterpillar of *Ephestia kuehniella*, J. Danysz. Some remarkable Hemiptera, A. Giard. A Dipter parasitic on Myriapods of the genus *Lithobius*, A. Giard. Copulation of *Clytus tropicus*, F. Decaux. Habits and metamorphoses of *Lyda stellata*, *Cryptohypnus riparius*, Capt. Xambeu. Fossil Syrphidæ of the Tertiary amber, F. Meunier.—4. April 30, 1894 (see Croissandeau above). Note on the fossil Thysanura of the genus *Machilis* and description of a new species, H. Gadeau de Kerville, fig. Apparatus for rearing and observing ants and other small animals which live concealed and require a humid atmosphere, C. Janet. Change of instinct in *Megachile centuncularis*, A. Giard.

10. REVUE BIOLOGIQUE DU NORD DE LA FRANCE, vii. 2. Lille, November, 1894.—Remarks on the organization and comparative anatomy of the last segments of the body of Lepidoptera, Coleoptera and Hemiptera, A. Peytoureau, figs., 7 pls.

11. BULLETIN DE LA SOCIETE DES SCIENCES HISTORIQUES ET NATURELLES DE SEMUR (2), 7, 1894.—The "nonne" (*Psilura monacha*), description, habits and metamorphoses, invasions, etc., M. de Gail.

12. JAHRESBERICHT DER NATURFORSCHENDEN GESELLSCHAFT GRAUBUNDENS (N. F.), xxxvii. Chur, 1894.—On the actual origin of formic acid in honey, Dr. A. von Planta.

13. BIBLIOTHECA ZOOLOGICA, heft 18. Stuttgart, E. Nägele.—Comparative physiological and anatomical researches on the senses of smell and taste and their organs, with introductory considerations from general comparative physiology of sense, Dr. W. A. Nagel, 7 pls.

14. ANNALES DE LA SOCIETE D'AGRICULTURE, SCIENCES ET INDUSTRIE DE LYON (7), i, 1894.—Relations between the peculiarities of the cocoons of *Bombyx mori*, J. Raulin.

15. LEPIDOPTERA INDICA by F. Moore. Pt. xix. London: L. Reeve & Co.; 1894 [Received Dec. 24, 1894.]—Contains pp. 161–176 of vol. ii, pls. 139–146 (Elymniinæ, Amathusiinæ).

16. NATURE. London, Nov. 29, 1894.—Indo-Malayan spiders, R. I. Pocock. [Review of T. and M. E. Workman's "Malaysian spiders," Belfast, 1894, pts. 1–3.]—December 6. Origin of classes among the "parasol" ants, H. Spencer.—December 13. Indo-Malayan spiders, B. A. Muirhead. The warble fly, W. F. Kirby, figs. [Review of Miss E. A. Ormerod's "Observations on Warble Fly or Ox Bot Fly," London, 1894].

17. BIOLOGIA CENTRALI-AMERICANA. Pt. cxviii. London, October, 1894.—Coleoptera: vol. ii, pt. 1, pp. 441–464, pl. xiv, D. Sharp [Adimeridæ, Colydiidæ]; vol. iii, pt. 1, pp. 257–264, G. C. Champion [Elateridæ]; vol. vii, pl. xi, H. S. Gorham [Coccinellidæ]. Lepidoptera-Rhopalocera: vol. ii, pp. 361–376, pl. lxxxii, F. D. Godman & O. Salvin

[Hesperidæ]. Rhynchota-Homoptera, vol. ii, pp. 25–56, pl. ii, W. W. Fowler.

18. COMPTE-RENDU. SOCIETE PHILOMATHIQUE DE PARIS. Dec. 8, 1894.—Salivary glands of the Apinæ (*Apis mellifica* ♂ and ☿), M. Bordas.

19. ZOOLOGISCHER ANZEIGER. Leipsic, Dec. 17, 1894.—On the life-history of *Chermes abietis* L. and *C. strobilobius* Kalt., N. Cholodkowsky.

20. BULLETIN OF THE AMERICAN MUSEUM OF NATURAL HISTORY, vi, art. xviii. New York, December, 1894.—On North American moths, with the description of a new species of *Tripocris*, W. Beutenmüller.

21. ATTI DELLA SOCIETA VENETO TRENTINA DI SCIENZE NATURALI (2), ii, 1. Padua. Dated 1895, received Jan. 1, 1895.—Embryology of the Acari, F. Supino, 3 pls.

22. KONGLIGA SVENSKA VETENSKAPS-AKADEMIENS HANDLINGAR (n. s.), xxv, 2. Stockholm, 1893–94.—On the classification and distribution of the palæarctic Collembola, H. Schott, 7 pls.—xxiv, 1891. Scandinavian Neuroptera-Trichoptera, H. D. J. Wallengren. BIHANG of the same, xviii, iv, 8, 1893. On the cortical innervation and capillaries of Lepidopterous larvæ, E. Holmgren, 1 pl. [all received Dec. 26, 1894.]

23. CATALOGUS HYMENOPTERORUM hucusque descriptorum systematicus et synonymicus Auctore, Dr. C. G. de Dalla Torre. Vol. ix: Vespidæ (Diploptera), Lipsiæ. Sumptibus Guilelmi Engelmann, MDCCCXCIV, 181 pp.

24. SOCIETAS ENTOMOLOGICA. Zurich-Hottingen, Dec. 1, 15, 1894.—Lepidopterological notes from America, H. Ficke. *Ctiorhynchus ovatus* L. in North America, H. J. Wickham (= H. F. Wickham!). *Carpocapsa saltitans* from Mexico, M. R[uhl].

25. PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND, iv, 12. New Brighton, Dec. 8, 1894.—Two additions to the local list of dragonflies, W. T. Davis.

26. THE CANADIAN ENTOMOLOGIST. London, Ont., December, 1894. —Some Psychodidæ from Long Island, N. Y., N. Banks. A new Pericopid and some new Zygænidæ from Cuba, B. Neumoegen. Some little-known species of *Oeneis*. H. J. Elwes. The Coleoptera of Canada—vi, H. F. Wickham, figs. A new Attid from Jamaica, T. D. A. Cockerell. Entomological notes, C. H. Fernald. List of the dragonflies of Corunna, Mich., D. S. Kellicott. Notes on *Alypia mariposa*, J. B. Lembert. Notes on Quebec Coleoptera, A. W. Hanham. On the geographical distribution of some common scale insects, L. O. Howard. *Staphylinus cæsareus* Cederh. and *S. erythropterus* L. in Canada, W. H. Harrington. —January, 1895. The genera in the Noctuidæ, A. R. Grote. The American species of *Perineura*, A. D. Macgillivray. Coleoptera of Lake Worth, Florida, Mrs. A. T. Slosson. Genitalic classification, Rev. G. D. Hulst. Notes on *Carama* and other Megalopygidæ, H. G. Dyar. On a new scale insect found on plum, T. D. A. Cockerell. Preliminary studies in Siphonaptera, C. P. Baker.

27. PSYCHE. Cambridge, Mass., January, 1895.—On the Rhopalomeridæ, S. W. Williston. A Psyllid leaf-gall on *Celtis*, probably *Pachypsylla celtidis-pubescens* Riley, C. H. T. Townsend. *Phthiria sulphurea* Loew, T. D. A. Cockerell. Life-history of *Clisiocampa fragilis* Stretch., H. G. Dyar. Uncertainty of the duration of any stage in the life-history of moths, C. G. Soule.

28. THE ENTOMOLOGIST'S RECORD. London, Dec. 15, 1894.—The life-history of a Lepidopterous insect, etc., chap. iii: Parthenogenesis or Agamogenesis, J. W. Tutt.

29. THE CECROPIAN. Milton, Mass., December, 1894.—Entomological contrivances, S. N. Dunning, W. L. W. Field, M. L. Barner.—January, 1895. A list of the Lepidoptera-Heterocera of Bridgewater and Brockton, Mass., W. L. Tower.

30. AMERICAN SPIDERS AND THEIR SPINNINGWORK.—A Natural History of the Orbweaving Spiders of the United States with special regard to their industry and habits. By Henry C. McCook, D.D. Vol. iii. With descriptions of orbweaving species and plates (dated Academy of Natural Sciences of Philadelphia, A. D. 1893, on the title page, but the preface bears date of July 3, 1894, while the volume was received by the Academy Dec. 17, 1894). With this third volume Dr. McCook completes this book on the American spiders, of which the first volume appeared in 1889, the second in 1890. The work, the author tells us, has engaged his thoughts for more than twenty years, and he naturally expresses his profound satisfaction on having completed it. The NEWS takes great pleasure in congratulating him on this happy termination of his labors. The third volume comprises 406 pages and thirty plates. Of the text, 131 pages and 98 figures therein treat of general habits, biological miscellany and anatomical nomenclature, while the remainder is occupied by descriptions of genera and species. The plates contain both plain and colored illustrations of this latter part of the text.

31. GARDEN AND FOREST. New York, Jan. 2, 1895. The chestnut weevil, R. A. S., Ed. [C. S. Sargent].

32. TRAVAUX DE LA SOCIETE DES NATURALISTES DE ST.-PETERSBOURG. Section de Zoologie et de Physiologie, xxiv, 2, 1894.—The embryonic development of *Ixodes calcaratus* Bir., J. Wagner, 4 pls.

33. BULLETIN DE L'ACADEMIE IMPERIALE DES SCIENCES DE ST.-PETERSBOURG. (N. S. iv), xxxvi, 1-11, December, 1893.—Synoptic revision of the Meloidæ of the genus *Ctenopus* Fisch., A. Semenoff.—12-22. March, 1894. Experimental studies on the lymphatic glands of invertebrates, A. Kowalevsky. [Both received Jan. 7, 1895].

34. SCIENCE. New series, vol. i, No. 1. New York, Jan. 4, 1895.—The need of a change of base in the study of North American Orthoptera, S. H. Scudder.

35. MITTHEILUNGEN AUS DEM NATURWISSENSCHAFTLICHEN VEREIN FUR NEU-VORPOMMERN UND RUGEN IN GREIFSWALD, XXV. Berlin, 1894.

—On new and little-known Neuroptera of the family Megaloptera Burm., Dr. A. Gerstaecker.

36. THE BRITISH NATURALIST. London, Dec. 15, 1894.—Some curious aquatic larvæ, G. Swainson, 1 pl. A catalogue of Irish Coleoptera, Rev. W. F. Johnson. Synonymic list of the genera of the British Araneida, Rev. F. O. Pickard-Cambridge.

37. FEUILLE DES JEUNES NATURALISTES. Paris, Jan. 1, 1895.—Resistance of Zygænids to cyanide of potassium. A dipterous parasite of Orthoptera, C. Marchal. Libellulæ and ants, P. Zurcher.

38. ANATOMISCHER ANZEIGER. Jena, Dec. 19, 1894—Spermatogenesis of *Caloptenus femur-rubrum*, E. V. Wilcox.

39. ZOOLOGISCHE JAHRBUCHER, viii, 2. Jena, Dec. 10, 1894.—On the structure and development of the endosternite of the Arachnida, W. Schimkewitsch, 2 pls.

40. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 1894, pp. 419-420.—A supplementary note to Mr. Johnson's list of Jamaican Diptera, T. D. A. Cockerell.

41. MEMOIRES DE LA SOCIETE ZOOLOGIQUE DE FRANCE, 1894, pp. 375-392.—Observations and experiments on the means of protection of *Abraxas grossulariata* L., F. Plateau, figs.

42. LEITFADEN FUR DAS STUDIUM DER INSEKTEN und Entomologische Unterrichtstafeln. Von Dr. G. Rörig. Berlin, R. Friedländer & Son, 1894, 43 pp., 8 pls.

43. TWENTY-FIFTH ANNUAL REPORT of the Entomological Society of Ontario. Toronto, 1894.—Insects collected in Bermuda during the Winter of 1894, G. Geddes. Common names for butterflies—shall we have them?, H. H. Lyman. The butterflies of the eastern provinces of Canada, Rev. C. J. S. Bethune, figs. The pitcher plant moth (*Exyra Rolandiana* Grt.), J. Fletcher. *Catastega aceriella* Clemens, *Semasia signatana* Clemens, Rev. T. W. Fyles. Notes on a few Canadian Coleoptera, W. H. Harrington, fig. Food, feeders and fed, Rev. T. W. Fyles, figs. An attack of *Ephestia interpunctella*, H. A. Stevenson. The economic value of parasitism, F. M. Webster, figs. A re-appearance of *Pieris protodice* Boisd., J. A. Moffat. Remarks on the structure of the undeveloped wings of the Saturniidæ, id. Bordeaux mixture as a deterrent against flea beetles, L. R. Jones. The gypsy moth (*Ocneria dispar* L.), J. Fletcher, figs. The San José (*Aspidiotus perniciosus* Comstock), id., figs. Injurious fruit insects of the year 1894, id., figs. (Some of the papers read at the sixth annual meeting of the Association of Economic Entomologists, already recorded in the NEWS, are here reprinted).

44. PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, iii, 2, Jan. 8, 1895.—Additions to the lists of North American termitophilous and myrmecophilous Coleoptera, E. A. Schwarz. Neuration of the wings of the Tenthredinidæ, C. L. Marlatt, figs. Notes upon *Belostoma*

and *Benacus*, C. V. Riley, figs. The eggs of *Ceresa bubalus* Fab. and those of *C. taurina* Fitch, id., figs. On the habits of some Longicorns, F. H. Chittenden. Note on the mouth parts of *Stenopelmatus*, L. O. Howard. Note on the discovery of a new Scolytid, with brief description of the species, A. D. Hopkins. Notes on food habits of *Corthylus punctatissimus*, id. Annual address of the President—Longevity in insects, with some unpublished facts concerning *Cicada septendecim*, C. V. Riley.

45. BERLINER ENTOMOLOGISCHE ZEITSCHRIFT, xxxviii, 3-4, January, 1894.—Monographic contributions to the beetle-fauna of Central America, A. F. Nonfried. Contributions to the classification of the Muscidæ, E. Girschner, figs. On some palæarctic Chilopoda, C. Verhoeff, figs. The history of the so-called breast-bone of the Cecidomyias with a recollection of Carl Ernst von Baer, C. R. Osten Sacken. Two critical remarks about the recently published third part of the *Muscaria schizometopa* of MM. Brauer and Bergenstamm; also a notice on Robineau-Desvoidy, id. —xxxix, 1. May, 1894. The extra-European Sciaras of the Königl. Museum für Naturkunde in Berlin, E. H. Rübsaamen, figs., 3 pls. On the atavic index-characters with some remarks about the classification of the Diptera, C. R. Osten Sacken. Dipterological studies—i. Scatomyzidæ, T. Becker, 6 pls.—xxxix, 2. July, 1894. On Australian Zoocecidæ and their producers, E. H. Rübsaamen, 7 pls. Synonymica about Tipulidæ, C. R. Osten Sacken.—xxxix, 3. October, 1894. The ants of Rio Grande do Sul, Dr. H. von Jhering, figs., 1 pl. [All the above numbers of this Zeitschrift received Jan. 10, 1895!].

46. THE NATURALISTS' JOURNAL. London, January, 1895.—Pupa hunting, H. G. Knaggs. *Abraxas grossulariata* and its varieties, S. L. Mosley, figs. Furniture beetles, id., figs. Some underground beetles, Rev. T. Wood.

47. THE ENTOMOLOGIST. London, January, 1895.—The pigments of the Pieridæ: a contribution to the study of excretory substances which function in ornament, F. G. Hopkins.

48. THE ENTOMOLOGIST'S MONTHLY MAGAZINE, January, 1895.—Caustic potash as an entomological detergent, W. F. H. Blandford. Relaxing insects without aqueous vapor, H. G. Knaggs. *Vesperoctenus* Bates, and its systematic position, C. J. Gahan.

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49. KRITISCHES VERZEICHNISS der Myrmecophilen u. Termitophilen Arthropoden * * * von E. Wasmann S. J. Berlin, Felix L. Dames, 1894. Under this title Dr. Wasmann, the greatest living writer on the subject, has given an annotated catalogue of all the known species of Arthropods which he considers as properly coming under the head of myrmecophiles and termitophiles, after eliminating the element of accidental or simply occasional visitors which have made a respectable percentage of most foregoing lists.

After a short introduction treating of the general subject and its proper study, the author gives a table of the number of species in the various

groups of Arthropods mentioned in the body of the work. From this table we learn that the entire number of myrmecophilous insects recorded from the globe, and including several which, while not actually known to have this habit, are placed here on account of structural peculiarities which indicate as much, reaches 1177. Of these 993 are Coleoptera, the best represented families counting up as follows: Staphylinidæ, 263; Paussidæ, 169; Histeridæ, 128; Pselaphidæ, 113; Clavigeridæ, 89. Thirty families of beetles are mentioned as more or less certainly myrmecophilous, and several of them contain from 15 to 40 species, each of which live with ants. The Strepsiptera, which American writers have usually treated as Coleoptera, furnish one species taken from the hind-body on a Ceylonese ant.

The Hymenoptera furnish 38 myrmecophiles, of which 22 are ants, and 14 belong to the parasitic families Braconidæ, Chalcididæ and Proctotrupidæ. The Lepidoptera have 26 members here, the Diptera 18, the Orthoptera 7, the Pseudoneuroptera 1, the Rhynchota 72, the Thysanura 20. Myriapoda are considered doubtfully included, or more likely simply accidental or inimical visitors. There are 26 spiders and 34 Acarina. The Crustacea (Isopoda) have 9 representatives.

The termitophiles are much less numerous, reaching the number of 105, divided thus: Coleoptera, 87 (of which 5 are Carabidæ, 59 Staphylinidæ, 5 Pselaphidæ, 1 Silphid, 1 Lathridiid, 7 Histeridæ, 6 Scarabæidæ, the Curculionidæ and Chrysomelidæ being doubtful), Hymenoptera 6, Lepidoptera 2, Diptera 2 (doubtful), Orthoptera doubtful, Pseudoneuroptera 4, Rhynchota 3, Thysanura 1. The Arachnoidea have four species.

After this tabulated statement comes a bibliography of the subject numbering over 500 titles of greater or less importance, interspersed with critical notes on their value. Next follows the catalogue proper, a list of species classified first into families which are then divided into myrmecophilous or termitophilous species. In each case a reference or note shows whence the information is derived, and where other attention is needed it is given. A supplement of 19 pages contains descriptions of new species, among them a number of North American forms. The whole is well indexed and forms a work which will forever reflect credit on its author and must form an essential part of the library of the student of this fascinating branch of Entomology.—H. F. WICKHAM.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

PHILADELPHIA, Jan. 8, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, 1509 S. Thirteenth Street. Members present: Messrs. Laurent, Haimbach, Boerner, Seeber, Hoyer, E. Wenzel, Trescher, Fox, Dr. Castle, Johnson, H. W. Wenzel and Schmitz. Honorary member: Dr. Henry Skinner. Meeting called to order at 8.50 P.M. President Laurent presiding. The annual reports of the Secretary and Treasurer were read and approved, following which the President, Mr. Philip Laurent, delivered the annual address, reviewing the history of the Social since its organization, and, upon motion of Dr. Skinner, seconded by Mr. Fox, the same was ordered to be incorporated in the minutes.

THE PRESIDENT'S ADDRESS.

The Past, Present and Future of the Feldman Collecting Social.—Looking backwards some six or seven years I see before me a number of gentlemen gathered together in the entomological den of our host, Mr. Henry Wenzel. What are they here for? What are they doing? What could have induced these men with comfortable homes to venture out such a night as this? They have met to form an entomological club, or more strictly speaking a social. They are discussing rules and laws to govern the same, and the selection of a suitable name by which the club shall be known. What brought them together? love of companionship and the advancement of their entomological studies, nothing more, nothing less. No doubt all those present this evening, who took part in the first meeting had their doubts as to the success of the venture, doubts which have vanished long before this. At the time the Social was formed some thought it rather strange that another entomological society should be formed in a city wherein there was already such a society in existence whose reputation for its collections, library and labor in the field of entomology was known throughout the world. The fact was, that many of those attending the meetings of the American Entomological Society, many of whom were members of the said society, did not find the social feature represented there to any great extent, and it is perhaps well that it should be so, otherwise in time the social feature might eventually rule the meetings, which would certainly bring about a deplorable state of affairs. The fact is, the rooms of the American Entomological Society are for work, while the rooms of the Feldman Collecting Social are for social intercourse and pleasure, at least this is the case on the second Tuesday of each month, while it is true that during the rest of the month considerable entomological work is done, especially by our host, Mr. Wenzel.

One year after the organization of the Social there was found to be no decrease in the membership, in fact there never has been any. During the second year two of the members resigned from the Social, but their

places were immediately filled by some of those waiting for an opening. The membership has since grown, so has the interest in the Social, and I might add the interest in entomology, for no doubt social intercourse among entomologists helps to stimulate to greater effort in unraveling entomological problems.

We are now about seven years old, and the present time finds no abatement of the interest in the Social's affairs; several new members have been recently added, and at the present rate of increase it will soon be necessary to hang out the sign—"standing room only." Another feature of the present time is, that the minutes of our meeting are thought of sufficient importance to warrant the editors of the ENTOMOLOGICAL NEWS publishing them in their journal under the head of "Doings of Societies." Up to the present, good health, so essential to hard work in the field, has been enjoyed by the majority of the members; our collections have increased wonderfully and many rare species have been added. But, as to the future, who can tell? As far as indications go, the outlook could not be brighter. Prosperity has been ours since the Social started; what is to hinder its continuing? Our treasury is somewhat different from that of the U. S. it is true, ours being full, while its is comparatively empty. Various trips have been mapped out for the coming season, in anticipation of which we are looking into the future with much pleasure. That the Social may prosper in every way and have a long and profitable life is the wish of your retiring President, Philip Laurent.

Mr. Boerner exhibited two boxes of Coleoptera, being his re-arranged collection of water beetles. He stated that out of 108 species represented, 82 were found in Pennsylvania and New Jersey. Mr. Seeber exhibited a number of cocoons taken from the trunk of a palm which were evidently made by the larvæ of a weevil, as a dead imago was found in one of them. He received them from Mr. Louis Schneider, of Philadelphia. Dr. Skinner stated that there appeared some uncertainty among entomologists in reference to the manner of marking the data on mounted specimens. Some mark the month first and some the day. He therefore suggested, as a remedy, to first mark the month in Roman numerals followed by the day of the month in Arabic.

On the invitation of Dr. Skinner, it was moved by Mr. H. W. Wenzel that the next meeting be held at the Doctor's residence, Tuesday, February 12th, and the Secretary be instructed to notify the members of the place of meeting several days previous.

The election of officers for the ensuing year resulted as follows, by a unanimous vote:

President.—Mr. JAMES H. BLAND.
Vice-President.—Dr. DAVID M. CASTLE.
Treasurer.—Mr. H. W. WENZEL.
Secretary.—Mr. THEO. H. SCHMITZ.

No further business being presented the members adjourned to the annex to their annual banquet. THEO. H. SCHMITZ.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

DESCRIPTIONS OF NEW HYMENOPTERA.

By T. D. A. COCKERELL, N. M. Agr. Exp. Station.

Sphærophthalma prunotincta n. sp.—♀ 14 mm. long; of the general build of *sumichrasti*, but the thorax somewhat longer and the head decidedly smaller. The coloration of the thorax resembles that of *sumichrasti*, but the black triangle has its base about the hind margin (instead of the front margin) of the prothorax. The second segment of the abdomen differs totally from that of *sumichrasti*, being a dull plum-color, with two yellowish spots. Color dark pinkish brown, with black and pale yellowish or cream-colored pubescence. Head covered with pale yellowish hairs as in *sumichrasti*, eyes lashed with long black hairs. Antennæ black, scape covered with pale hairs. Dorsum of thorax covered with yellowish hairs, except a large mid-dorsal heart-shaped patch (or, one might say, rounded triangle), with its base as above mentioned, and its apex on the upper part of the metathorax. Abdomen elongate pyriform; first segment broadened and sessile, its suture with the second somewhat constricted. Second segment above strongly reticulate, pinkish brown, with rather sparse, erect hairs, a median patch of appressed black hairs, with a round patch of appressed cream-colored hairs on each side of it, and a fringe of cream-colored hairs bordered above by blackish. The third segment has a similar fringe of creamy-yellow hairs, but its exposed dorsal surface is also covered by such hairs. The remaining segments show the yellowish fringe to the sides, but their dorsal surface is covered by a large black blotch; underside of abdomen with long yellowish hairs. On the second segment the yellowish fringe intrudes mid-dorsally into the blackish area, giving the appearance of a yellowish spot, which forms an equilateral triangle with the two yellowish dorsal spots. Legs pinkish brown, with the joints and the spines black; the large spines at the apex of each tibia are very distinctly serrate on their inner margin,—a character also noticed in *sumichrasti*, *occidentalis*, *dugesii* and *orcus;* while *megacantha* is of a different type, having the spines of the posterior tibiæ very feebly serrate, those of the middle ones not serrate, and those of the anterior ones serrate spiny on both sides.

The coloration of the abdomen in *prunotincta* is peculiar. The dark plum-colored tint is wholly due to the dermis, all the hairs being either black or yellowish. The black patch, which in *sumi-*

chrasti covers the whole of the dorsum of the third segment, is in *prunotincta* shifted backwards, so as to have its upper margin on the fourth segment.

In *sumichrasti* the yellow bordering the second segment becomes deeper, almost orange, in tone, and much greater in extent; while the small intrusion into the black mentioned in *prunotincta* becomes in *sumichrasti* a large, clean-cut notch in the black middorsum of the segment. Here again we see the markings of *sumichrasti* shifted backward in *prunotincta*, and the same is the case as above explained, also on the thorax.

Comparing *dugesii*, *prunotincta* and *sumichrasti*, one sees that in spite of great superficial differences of color they are nearly related; and on further reflection, there appear good reasons for regarding *dugesii* as furthest from, and *prunotincta* nearest to their common ancestor. It may not be out of place to dwell a little on this phase of the subject, and so depart from the usual dry detail of descriptive entomology!

In *prunotincta* and *sumichrasti* we find yellow hairs, but none scarlet. In *dugesii* beautiful pinkish scarlet hairs appear on the abdomen, while in the little *heterchroa* they have extended to the head and thorax. In all groups of animals, it is recognized that yellow and yellow colors are intimately related, and that red is a later product of metabolism than yellow; thus red forms vary to yellow, but not yellow to red, except in the form of gradual red suffusion. Red varying suddenly to yellow is regarded as atavism; thus, for example, the red *Lopidea media* has a yellow variety, *robiniæ* Uhler, which we hold to be either ancestral or atavistic in its nature.

It follows, therefore, that we have presumptive evidence for regarding *sumichrasti* as an older type than *dugesii*, and *dugesii* as older than *heterchroa*. On examining the maculation we find, as above stated, that the markings of *sumichrasti* are thrown about a segment *backwards* in *prunotincta*. But in *dugesii*, compared with *sumichrasti*, they appear to be slightly thrown *forwards*, so that, for example, the black spot of the apical half of the abdomen intrudes on the second segment, and the black proper to the second segment is pushed to its base. Consequently, as *sumichrasti* falls, in regard to its maculation, between *dugesii* and *prunotincta*, and as we have held *dugesii* to be a later type

than *sumichrasti*, there seems a reasonable probability that *prunotincta* is an older type than either.

At this point the little Mexican *S. arachnoides* becomes interesting. Colored black and yellow, like *sumichrasti*, its markings are nevertheless thrown back in the manner of *prunotincta*.

Thus we get a series of types, from the oldest to the newest, in *prunotincta*, *arachnoides*, *sumichrasti*, *dugesii*, *heterochroa*. This series is Mexican in its distribution, but extends northward (in *heterochroa*) to the region of the Organ Mountains in N. Mexico.

The unique type of *prunotincta* is from Guanajuato, Mex., found by Dr. A. Duges.

Sphærophthalma myrmicoides n. sp.—♀ about 4 mm. long, rufous, sparsely hairy. Head subcircular, its angles rounded, a little wider than thorax, strongly punctate; very sparingly pubescent with yellowish white hairs, which do not interfere with its general color, and are not visible without a lens. Flagellum blackish; mandibles large, with blackish ends, denticle blunt; the thorax, as seen from above, is shaped like the helmet of the British grenadier—that is to say, it is rounded and somewhat swollen anteriorly, narrowing posteriorly, without any marked constriction, and finally truncate at the rim of the rapidly descending metathorax; seen from the side, the thorax presents a triangle, the base of which is its inferior surface; in this triangle the anterior side is greater than the posterior (metathoracic) side, which it meets at an angle only slightly greater than a right angle. The surface of the thorax is strongly rugose-punctate; and the pale hairs, most numerous and longest on the metathorax, are so scanty as not to obscure the rufous color of the dermis. Legs yellowish, with the femora and tibiæ blackish, except at their ends. Abdomen elongate pyriform, shining rufous, distinctly punctate, sparsely covered with pale hairs above and below; last three segments almost black. First segment large, much broadened and sessile with the second, the suture between them inconspicuous.

Hab.—Columbus, Texas (H. F. Wickham). One specimen.

In color and general build, it reminds one of *ferrugata*, but is smaller than the smallest of that size-varying species, besides having the first segment of the abdomen different. *S. pygmæa*, from Blake's description, might closely resemble it; but I have regarded another specimen, from Las Cruces, N. Mex., as referable to *pygmæa*. This latter, which has the white fringe on the abdominal segments very distinct (whereas it is extremely inconspicuous in *myrmicoides*), at least agrees better with *pygmæa* than the present form, though it may quite possibly be distinct

and undescribed. *S. frigida* Smith, by the description, also seems similar, but I think is clearly distinct.

It is curious that from the same locality (Columbus, Texas), as well as from Morgan County, La., Mr. Wickham sends a small *Mutilla* which presents a close superficial resemblance to *S. myrmicoides*. This, which appears to be certainly *M. puteola* Bl., will be distinguished by the shape of the eyes and somewhat larger size, as well as the parallel-sided thorax and other characters which appear on minute examination.

[This species is closely related to *pygmæa*, differing by the want of white pubescence on the apical abdominal segments.—W. J. F.]

Sphærophthalma quadriguttata Say, var. *biguttata* sp. nov.—The two anterior spots of the second abdominal segment absent.

I have a ♀ from Columbus, Texas (Wickham). The remaining posterior spots are somewhat reduced in size, and for this reason rather further apart than in typical *quadriguttata*, though not nearly so far apart as in *wickhami*. This variety, though now first named, is alluded to by Blake.

The interest of this variety arises from the fact that in color markings, though not in structure, it shows a transition towards *wickhami*. It remains to be seen whether it occurs in the South only, or extends northwards with the typical form.

Brachycistis idiotes n. sp.—♂ shining chestnut-brown, head, legs and antennæ concolorous; wings hyaline, with a slight yellow tinge, venation fuscous, stigma shining, very dark brown. Length of anterior wing 15 mm.; of first abdominal segment 3½ mm. Antennæ long, as usual in the genus, first joint of flagellum about as long as second. Ocelli large, not situated on any black patch. Punctures of thorax distinct, but scattered, not numerous. Legs with pale long hairs, tibial spurs very long and slender, the longest one on the hind leg being about half as long as the first joint of tarsus. First abdominal segmens with erect pale hairs; its shape elongate, narrow, but slightly constricted at its junction with second. Second segment above not punctate. Wings ample, stigma a little over 2 mm. long, marginal cell just 2 mm. long, moderately narrow, terminally obliquely truncate, appendiculate. First submarginal longer than stigma; second triangular, about as long as marginal, its distal lower angle a right angle; third irregularly quadrate, narrowed above. First recurrent nervure joining second submarginal considerably beyond its middle; second recurrent joining third submarginal also beyond its middle. Minute hooks on costa of inferior wing thirteen in number (in *castanea* they are about seventeen).

Hab.—Las Cruces, N. Mex. (Cockerell).

Most unfortunately, the unique type was attacked by *Anthrenus* while I was away during the Summer, owing to its not having been transferred to the general collection. There is, however, quite sufficient remaining to give the differential characters.

The species is apparently nearest to *lepidus*, but differs in its long marginal cell and in the second submarginal receiving the first recurrent beyond the middle. In the latter character it resembles *alcanor*, from which it differs in color and other particulars. From *castanea* it is at once separated by its color and the shape of the first abdominal segment. In the generic description of *Brachycistis* "one very short, truncate marginal" must be altered to read "one marginal, truncate, often very short."

Note on habits of *B. idiotes*, etc.—In September *Brachycistis glabrellus*, *B. castaneus* and *B. elegantulus* were taken at light in the Mesilla Valley, the first named being especially numerous. Not a single *B. idiotes* or *B. lepidus* was to be seen, and when *idiotes* was described I knew it only from the one specimen taken in Las Cruces last Autumn. In November two *B. lepidus* were found drowned in the horse-trough at the Agricultural College—one on November 5th, the other on November 22d. In the same month two *B. idiotes* came to the lamp at my house in Las Cruces, one on November 21st, the other on November 25th. Another *idiotes* entered my house about the middle of December. During this period (November, December) nothing was seen of *glabrellus*, *castaneus* or *elegantulus*. Thus it is seen that *idiotes* and *lepidus* appear in late Autumn, after the Summer species have disappeared: to this fact must doubtless be ascribed the non-discovery, until last year, of so large and easily recognized a species as *idiotes*. The size of *idiotes* varies, the largest (type) is fully as large as *lepidus*, the smallest only 11 mm. long.—T. D. A. COCKERELL, December, 1894.

OBITUARY.

The death has been announced of Dr. GEORGE MARX, of Washington, D. C. Dr. MARX was well known as a writer on spiders and as the author of a catalogue of the described Araneæ of Temperate North America.

GEORGE D. BRADFORD, a promising young entomologist, and corresponding secretary of the New York Entomological Society, died at his home, in New York City, Nov. 24, 1894, of typhoid fever; he was born May 11, 1873.

BERTHOLD NEUMOEGEN died of consumption on January 21st.

ENTOMOLOGICAL NEWS for January, was mailed January 4, 1895.

BERTHOLD NEUMOEGEN.

ENTOMOLOGICAL NEWS

AND

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ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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BERTHOLD NEUMOEGEN.

Mr. Neumoegen died at his home, in New York, on January 21st of consumption, hastened by an attack of grip. His suffering during the last two weeks of his life was very great, and he looked upon death as a relief. He was born at Frankfort, on the Main, Germany, Nov. 19, 1845. He received a very good education, and his friends and schoolmates always spoke of him as one of the brightest of boys. He was a great linguist, speaking five or six languages fluently, and never tired of discoursing on his favorite subject—Lepidoptera. When a small child his greatest pleasure was to run in the fields with his butterfly net and catch his beloved insects. He began his collection about twenty-one years ago little dreaming of the extent to which it was destined to grow, but his love and enthusiasm increased every day, and he really added to his collection until the very last day of his life. His love for the butterflies was so great that, when working in his room with his assistant Mr. Doll, he would forget all about his illness and every other trouble and was really happy. One of Mr. Neumoegen's characteristics was his extreme liberality in allowing students to study the rich material in his magnificent collection, and as a consequence it contains many valuable types

described by our most prominent lepidopterists. In this connection Dr. Herman Strecker wrote of him: "When my friend Neumoegen, some years ago, commenced to study and collect Lepidoptera, to which he applied himself with an energy seldom equaled, I impressed on him the importance of obtaining examples from Arizona, giving him drawings of *Arg. nokomis* and other rare species. By indefatigable industry he secured collectors who, from inner Arizona, in a remarkably short time sent a large quantity of the most interesting material, among which were *Smerinthus imperator* and the coveted *nokomis* in both sexes, as well as numbers of others new to science. I cannot omit mentioning another still more astonishing thing in connection with the reception of these Arizona novelties which, incredible as it may appear, is nevertheless a fact, to the truth of which I am willing to at any time to be qualified with proper jurat appended; it is when Mr. Neumoegen passed them to me he did not even hint, let alone make it a condition, that any of the new species should be named after himself, his wife, his aunts, or his cousins-german, his grandparents, the stranger within his gates, or even after his rich neighbor." He was an indefatigable collector, and, as a result, was the possessor of one of the finest collections of Lepidoptera in the world. Mr. Neumoegen was also a well-known writer on his specialty, and described many new genera and species from this country and the West Indies, and of late years has published a number of valuable papers on the Bombycidæ in conjunction with Mr. H. G. Dyar. He was engaged in business as a banker and broker at No. 40 Exchange Place, and was a member of the New York Stock Exchange. Mr. Neumoegen will be greatly missed among his lepidopterological brethren and co-workers, and his wife and children will have the sympathy of his scientific friends in their irreparable loss.

In 1835, a plague of locusts made their appearance in China, in the neighborhood of Quangse, and in the western departments of Quangtung. The military and people were ordered out to exterminate them, as they had done two years before. A more rational mode, however, was adopted by the authorities, of offering a bounty of twelve or fifteen cash per catty of the insects. They were gathered so fast for this price, that it was immediately lowered to five or six cash per catty. A strike followed, and the locusts were left in quiet to do as much damage as they could.—*Cowan's Curious Facts.*

IGNORANCE OF THE KNOWLEDGE OF ENTOMOLOGY IN THE YEAR OF 1853.

By T. B. ASHTON, Tonganoxie, Kan.

It may be of interest to the readers of ENT. NEWS to know the opinion of so well informed and truthful an entomologist as the late Dr. Fitch, who had ample facilities to make correct observations as to the existing ignorance on the subject of insects and their habits, that was generally prevalent in this country six years prior to the organizing of the Entomological Society of Philadelphia. I make the following extract of a letter written by Dr. Fitch to Mr. Johnson, and first published in the "Journal" of the New York State Agricultural Society, July, 1853. Since the date of this letter, his seventeen years' of labor as New York State Entomologist, did very much to educate and enlighten an ignorant public on the subject of Entomology, and great credit is due to his industry in spreading through the land a correct knowledge of insects during his useful life. Forty-one years have passed since this letter was written, and what a wonderful contrast—the ignorance of Entomology at that time and the general knowledge of it to-day!

"SALEM, N. Y., June 30th, 1853.

"Hon. B. P. JOHNSON—

"My Dear Sir: * * * * * *

"But a still more remarkable instance of the excessive multiplication and consequent havoc caused by an insect not previously noticed has occurred in this vicinity since I received your letter. Indeed, it surpasses everything of the kind that has hitherto been experienced in this county since the date of its settlement. On the 19th inst. a man from Cambridge inquired of me whether I had observed the worms upon the apple trees, saying that all the orchards in that town were being stripped of their leaves. Next day, on going to my apple trees, I found the worm alluded to, upon all of them, committing great havoc; and a gentleman from the Argyle informed me that within two or three days past they had been observed overrunning all the apple trees there. Upon the 23d inst. the Circuit Court being in session in the village of Salem, I saw persons from most parts of the country, and learned that this worm was ravaging every orchard within our borders without exception. Some idea of the value of our orchards and the amount of damage which this pest threatens to do us may be formed from the fact that, two years ago, to supply the vacancies produced by trees that had perished, and to plant new orchards upon some farms, an agent from one single nursery disposed of young trees in their county to the amount of $10,000. As it well may, therefore,

this worm forms the leading topic of conversation in every circle, and our newspapers are giving notices of it in their columns. And the crude and erroneous notions that are being formed and circulated respecting it show, in a most humiliating manner, the gross ignorance which pervades our country upon topics of this kind. One gentleman tells me that in a conversation with the most noted and experienced nurseryman in our county they had mutually come to the conclusion that this worm had been bred by what in his neighborhood is termed 'the little green insect.' On enquiring I ascertained that this little green insect, so named because they knew no other name for it, was nothing more or less than *Aphis mali*, or Apple-leaf Louse. And the idea that this louse breeds these worms is rather more wild than it would be to conjecture that fleas breed bed-bugs. One of the most intelligent and successful farmers, who sometimes wields his pen as well as his scythe and hoe, favored me with the *recherche* information that this is the 'canker worm,'—at least, said he, it is the very same worm that was called the canker worm in Connecticut when I was a boy. Had my good friend asseverated that the moon was made of green cheese he would scarcely have surprised me more. I overheard another gentleman who is a graduate or one of our best colleges recommending to another similarly educated citizen to bore his apple trees, fill the hole with sulphur and close it by inserting a plug 'made from the wood of the same tree.' Methought he ought to have added that the hole should be made with 'a silver bullet,'—or at least that this operation should be done 'in the old o' the moon.' Friend Johnson, posterity will only need what I have above stated to show them that mauger all our vaunted light and intelligence in this, one of the most important branches of natural science to the farmer, and one of the most interesting departments of Nature's works to every studious and enquiring mind, our country at the present day is sunk in Egyptian darkness. In diffusive information, as far as it respects Entomology, we are lagging far behind the subjects of several of the monarchical and despotic governments of the old world. In Germany and Prussia, countries which are regarded as much less enlightened than our own, not merely is a professor of this science deemed indispensable in every university and every agricultural seminary, but its rudiments are taught in all their primary schools. In this country, on the other hand, such a thing as a course of lectures upon this science has never yet been delivered, except, perhaps, in one or two of our universities. Indeed, much of the very foundation of this science, upon this side of the Atlantic, is yet to be laid. Whole groups and families of insects have never been examined. We have not names even by which to designate a considerable portion of our species. Take this apple tree worm, for instance. It belongs to a family of insects of which, in Great Britain, there are upwards of 300 species. Our own country, we may safely assume, contains at least double that number. And of our 600 American insects of this family how many, think you, have been examined and described? So far as I am able to ascertain there are *three* species *only!*

In no other department of science is an exploration so urgently required, so loudly called for, as in this. Scarcely a week passes but that one and another within the circle of my acquaintance is coming to me with some insect which he has detected preying upon some article of property—of which insect he is anxious to know the name, habits and remedies. Within the last forty-eight hours one has brought me a worm which is infesting the roots of his squashes, melons and cucumbers, and has killed a large number of these plants in his and his neighbors' gardens; another has shown me some pea-pods containing a worm which is devouring the young peas; a third has brought in some tomato plants wilted and destroyed by a grub that has perforated the stalk; and a young lady has submitted to my notice some caterpillars which she finds devouring her roses. Such facts forcibly show how much, how very much, we need a thorough investigation of the Entomology of our country. It is indeed surprising that this branch of natural science, in an economical aspect second to no other in its importance, should have remained to this day so lamentably neglected. In that valuable series of volumes of Natural History of the State of New York we are presented with a full description of every object in the animal, vegetable and mineral kingdom, that exist without (= within (?)) our borders, save only our insects. This most important hiatus remains to be filled to complete that great work and render it full and entire as it was designed to be. Each succeeding year is showing how urgently we need the information which this part of that work would furnish. Why should its completion be longer delayed? The pecuniary loss which we shall sustain the present year from this one insect which is now devastating our orchards is probably greater than will be the whole cost of a survey of the insects of the State.

"* * * * * This moth pertains to the genus *Argyro-lepia* and the subgenus *Lozopera* of the distinguished British entomologist, Mr. Stephens. And as this species does not appear to have been hitherto described I propose to call it the *Argyrolepia pomariana*, the specific name being derived from the Latin: *pomarium*, which, translated, will give us for the common name of this insect, the *Orchard Moth*, or if we wish to be more definite, the *Orchard Argyrolepia*."

* * * * * *

Yours Truly,

ASA FITCH.

WE are the army of the great God, and we lay ninety-and-nine eggs; were the hundredth put forth, the world would be ours—such is the speech the Arabs put into the mouth of the locust. And such is the feeling the Arabs entertain of this insect, that they give it a remarkable pedigree, and the following description of its person: It has the head of the horse, the horns of the stag, the eye of the elephant, the neck of the ox, the breast of the lion, the body of the scorpion, the hip of the camel, the legs of the stork, the wings of the eagle, and the tail of the dragon.—*Cowan's Curious Facts.*

NOTES ON TYPES OF NORTH AMERICAN GEOMETRINA IN EUROPEAN COLLECTIONS.—IV.

By GEO. D. HULST.

(Continued from page 44, vol. vi, ENT. NEWS)

Melanippe concordata Wlk. 1295, is the same as *obductata* Moesch.

Camptogramma fluviata Hbn. has as synonyms, *C. lapillata* Gn. ii, 430, from Abyssinia; *C. baccata* Gn. ii, 430, from Ceylon; as well as the following from North America: *Cidaria peracuata* Wlk. 1421, *Coremia abruptata* Wlk. 1713, *C. alternata* Wlk. sup. 1681, *C. pigrata* Wlk. sup. 1681, *Camptogramma exagitata* Wlk. 1331, and *Camptogramma? signataria* Wlk. 1718. There is also a specimen of the same called *plemyrata* Feld., but I do not know whether it is correct.

Cidaria inclinata Wlk. 1727, is a synonym of *C. ferrugata* L.

The type of *Psychophora sabini* Curtis is in the Museum. The middle band of the fore wings is quite distinct, and it differs very much from the "seal brown" immaculate form which Dr. Packard had from Polaris Bay. Var. *frigidaria* Gn. ii, 269, is, I think, not different from the blackish form described by Dr. Skinner as *Glaucopteryx immaculata*. There are some specimens in the Museum among a number taken in Grinnell's Land which closely approach the form which Dr. Packard had.

Larentia ziczacata Wlk. 1185, *L. placidata* Wlk. 1186, and *Lobophora incommodata* Wlk. 1259, are the same as *Spargania magnoliata* Gn. ii, 455.

Thera congregata Wlk. 1264, is a much rubbed specimen of *lacustrata*, or *unangulata*, probably the latter.

Tephrosia comptaria Wlk. 406, is *Epirrita perlineata* Pack. *Melanthia condensata* Wlk. 1273 is the same species, but the type is faded and rubbed.

Tephrosia scitularia Wlk. 406, is *Epirrita cambrica* Curtis.

Eupithecia implicata Wlk. 1241, is not the same as *E. miserulata* Grt. I so determined it from a picture made from the type, but I was wrong. The species are very like each other, but distinct.

Eupithecia anticaria Wlk. 1241 and *E. explanata* Wlk. 1242, are the same.

Thalera superata Wlk. sup. 1612, is a synonym of *Nemoria pistacearia* Gn. i, 348.

Nemoria incertata Wlk. 1557, is the same as *N. gratata* Pack. and *N. oporaria* Zell.

Geometra mimicata Wlk. sup. 1600, is the same as *Synchlora rubivora* Riley, and is a synonym of *Aphodes glaucaria* Gn. i, 377.

Synchlora liquoraria Gn. i, 375, is *S. tricoloraria* Pack.

Iodis tractaria Wlk. 540, is the same as *Aplodes mimosaria* Gn. i, 377, which is probably the same as *Geometra ærata* Fabr.

Nemoria denticularia Wlk. 536, is the same species as *Synchlora excurvaria* Pack.

Racheospila lixaria Gn. covers *R.? extremaria* Wlk. 584, *Geometra inclusaria* Wlk. 508, *G. congruata* Wlk. 511, *Aplodes rubromarginaria* Pack. and *Racheospila cupedinaria* Grt. The type of *R. cupedinaria* is in the Museum.

Anisodes bifilata Wlk. 1585, is *Aplodes brunnearia* Pack. and is itself a synonym of *Nemoria bistriaria* Hbn.

Nemoria indiscriminata Wlk. 1556, *N. densaria* Wlk. 1557, and *Thalassodes deprivata* Wlk. 1559, are synonyms of *Nemoria chloroleucaria* Gn. i, 351.

Nemoria phyllinaria Zell. is the same as *N. zelleraria* Pack.

Geometra iridaria Gn. i, 344, is *G. rectaria* Grt. Mr. Grote's type is in the Museum. *Geometra remotaria* Wlk. 530, is the name for the insect which is called *G. iridaria* Gn. in our collections.

Some specimens have been sent me by Prof. Riley which seem to be *Eucrostis dominicaria* Gn. i, 367, from St. Domingo. Prof. Riley's specimens were from Key West, Fla.

Acidalia ordinata Wlk. 722, *A. puraria* Wlk. 796, and *A. candidaria* Pack. are the same.

Acidalia obfusaria Wlk. 786, is *A. punctofimbriata* Pack.

Under *Acidalia insularia* Gn. i, 469, may be placed the following: *A. invariata* Wlk. 1596, *A. asthenaria* Wlk. 737, *A. imparata* Wlk. 1598, and *A. persimilata* Grt.

Acidalia impauperata Wlk. 721 and *A. defixaria* Wlk. 796, are *A. frigidaria* Moesch. These and *A. consecutaria* Wlk. sup. 1623, with *A. sobria* Wlk. sup. 1624 are, I think, forms of *inductata* Gn. i, 494.

Lozogramma subæquaria Wlk. 1660, is *L. defluaria* Wlk. 984.

Acidalia similaria Wlk. 1592, of the D'Urban collection is, on the authority of Mr. Moffat, probably *A. quadrilineata* Pack. The type specimen is in poor condition, and is in the collection of the entomological society of Ontario.

Acidalia anticaria Wlk. 1593, of the same collection, and on the same authority, is probably the same as *A. subalbaria* Pack.

I also have received from Mr. Moffat a sketch of *Boarmia divisaria* Wlk. 489, of the D'Urban collection, and it is the same as *B. crepuscularia* var. *abraxaria* Wlk. 403. The name could not at any rate hold, as Walker had described *B. divisaria* previously, page 366, from Port Natal, Africa.

Of the other Boarmiæ of the D'Urban collection only two remain undetermined from the types, and the types are lost. Mr. Moffat writes me that in the drawer of the collection containing the Walker types of *Boarmia* is a paper, written probably by Mr. Reed, who was curator at the time of Mr. Grote's examination, as follows: "Grote says *Boarmia divisaria* is a good species; all the others, six in number, are synonyms." We have thus Mr. Grote's decision that none of the other species were valid. The two not determined are *B. convergaria* and *B. ejectaria*. *B. convergaria* may be *B. larvaria* Gn. and *B. ejectaria* may be *B. humaria* Gn. though only the wildest guess can be made from Walker's descriptions.

Ephyra ignotaria Wlk. 1576, and *E. triseriata* are synonyms of *E. myrtaria* Gn. i, 408.

Acidalia rufilineata Wlk. 783, is *A. timandrata* Wlk. 724.

Acidalia myrmidonata Gn. i, 487, is *Eois minutularia* Hulst, and *Craspedia lautaria* Hbn.

An insect from Key West, sent me by Prof. Riley, is *Acidalia umbilicata* Gn. i, 504, with *A. indoctaria* Wlk. as a synonym.

Acidalia restrictata Wlk. 722, *A. mensurata* Wlk. sup. 1621, and *A. continuaria* Wlk. sup. 1622, are the same as *A. ennucleata* Gn. i, 505. They are none the form ordinarily known as *A. ennucleata*, but the light colored insect without blackish spots and markings. The blackish insect Guenée figured as a variety of *ennucleata*, which I do not think it is. *A. reconditaria* Wlk., which I was not able to find in the Museum, is probably it, and it is probable that *Eulepidotis alabastaria* Hbn. may be the same thing. I see after my return that Mr. Grote has determined *A. reconditaria* as *A. ennucleata* from the type which he saw.

From Key West I have specimens sent from Prof. Riley which may be *Acidalia nataria* Wlk. sup. 1625; and also from southern Florida other specimens which are probably *Acidalia subquadrata* Gn. i, 459.

Acidalia ossularia Hbn. has the following as synonyms: *A. temnaria* Gn. i, 476, *A. sublataria* Gn. i, 474, *A. magniferaria* Wlk. 784, *A. flavillifera* Wlk. sup. 1624, and *A. repletaria* Wlk. sup. 1624. I fancy *A. violacearia* Wlk. may be the same insect.

Acidalia tactugata Wlk. 721 is the same as *A. eburneata* Gn. i, 474.

Almodes rivularia Grt. is the same as *A. terraria* Gn. i, 380. In "Novitates Zoologicæ," vol. i, p. 376, Mr. Warren gives a list of five other synonyms.

Conchylis cretiferana Wlk., said by Prof. Fernald to be a Geometer, is not a Geometer, but a Deltoid. The type has only the front wings left, and these are very much faded. It appears to be one of our common species.

Acidalia tremularia Wlk. 1614, is a *A. pannaria* Gn. i, 470.

Acidalia quadrannulata Wlk. 1595, is *Ephyra pendulinaria* Gn. i, 414.

Macaria impropriata Wlk. 888, is a synonym of *Paraphia subatomaria* Haw. as are also *Macaria fidoniaria* Wlk. sup. 1654, *M. exsuperata* Wlk. 1655, *Paraphia mammuraria* Gn. i, 273, *P. deplanaria* Gn. i, 272, and *P. nubecularia* Gn. i, 272.

Ennomos lutaria Wlk. sup. 1552, is *E. magnaria* Gn. i, 174.

Melanippe furcifascia Wlk. 1294, is a synonym of *Cidaria hastata*, var. *gothicata* Gn., as is also *hecate* Butler from Japan. It is the form with unicolorous black hind wings.

(To be continued.)

———o———

HIGH MOUNTAIN MOTHS.

By DAVID BRUCE, Brockport, N. Y.

I had stayed at a ranch in Park County, Colorado, for a few days every time I visited the State. The house was pleasantly situated on the south side of a long picturesque cañon, which ended at about 13,000 feet elevation in a broad gulch, overlooked by some of the highest peaks of the front range. The dwelling itself was exactly 10,000 feet above sea-level; the sloping hill sides were well covered with pines, poplars, willows

and various shrubs. Several rapid creeks, fed by the melting snows, tossed and tumbled noisily over their rocky beds, their banks being bright with wild flowers and grasses; occasionally the cañon would expand into wide boggy meadows (called "Broads," by the ranchmen, as the contracted spaces, hardly wide enough for a wagon-road, were also locally termed "Narrows"); a few hundred head of cattle roamed around, but were not in sufficient numbers to destroy the herbage, as is too often the case in the western mountains. Butterflies were abundant everywhere, and whether I rambled lower down the valley or climbed above timber to the higher levels I seldom returned without being well pleased with my captures, if the weather was fine, as the mornings always were; a few day-flying moths would occasionally present themselves—*Platarctia hyperborea* one day clumsily tumbled round a low willow close to the house and was quickly transferred to my cyanide bottle, a few examples of *Arctia cervinata* Strecker and *Antarctia brucei* Hy. Edw. occurred among the rocks; in the open spaces in the forests a small *Hemaris* was not uncommon at the blue flowers of *Mertensia*, on which plant the gray larvæ of *Cinophæla vermiculata* was feeding, *Nemeophila plantaginis* and *Alypia lorquinii* were frequent, the latter to be always found where *Epilobium* grew. In August the larvæ were very abundant on this plant; very rarely, indeed, *Lepisesia flavofasciata* was seen at blossom of *Ribes;* this larvæ I also found in July on *Epilobium*. Above timber, at the very edge of the melting snow-banks, the flowers were alive with four or five species of *Plusia* and a few *Oncocnemis* and *Melicleptrias*, the last apparently sleeping in the blossoms by night, as I frequently found them in a half torpid state in the early mornings inside the petals. On the mountain sides and highest peaks a few species of *Anarta* and *Agrotiphila* were lively in the sunshine, and occasionally a Geometrid would start from the rocks or be dislodged from the bushes, but as a rule the Heterocera were sparingly represented, not more than two or three dozen species being found in three Summers. I tried sugaring without the slightest success. On two or three occasions I saw a moth buzzing round the lamps in the house, but it was always *subgothica* or *auxiliaris*. As the motto and practice of every person at the ranch was "early to bed and early to rise," and I was generally well tired out when I got home, and after supper I had my cap-

tures and correspondence to attend to, I tumbled into bed nightly quite satisfied that I had thoroughly ransacked and exhausted the lepidopterological store of the vicinity.

An accident, however, opened my eyes, and I came to a quite different conclusion. One fine day at the end of July I met with a serious mishap that kept me indoors for two weeks with a couple of fractured ribs and sundry painful cuts and bruises. For the first three days the pain entirely kept me from thinking about insects; but I noticed a few moths at my bed-room window attracted by the lamplight. When I was able to move about, my kind landlord furnished me with a couple of large lamps, one of which I set at the window and fixed the other on a box at the open front door, I sitting on a chair just inside the house with net, bottle and box in readiness. As soon as it was dusk, *Mamestra olivacea* and several other small species new to me, came in plenty; as it grew darker larger species came. At last, with a bump against the lamp, *Agrotis ingeniculata* introduced itself to science for the first time. This large and handsome species was quite common for a few nights. I give below a list of my captures in ten nights. I always quit at eleven o'clock, as by that time at this high elevation the air began to get very cold and sometimes quite frosty. Those marked with an asterisk were common. I give the Bombycids and Noctuidæ only.

Lithosia bicolor
*cephalica**
Euprepia caja var. *utahensis*
Arctia parthenice
*Parorgyia leucophea**
Ichthyura bifiria
Cerura albicoma
var. *cineroides**
Gluphisia sp.?*
Datana perspicua
Halisdota maculata
*Oedemasia salicis**
Heterocampa grisea
Tolype velleda
Gastropacha wildei
Hypopta henrici
Hepialus McGlashani
Panthea gigantea
Raphia frater var. *coloradense**
Arsilonche albovenosa
Merolonche spinea
Acronycta three sp. (undetermined)
Rhynchagrotis rufipectus
*variata**
*Pachnobia littoralis**
*Agrotis ypsilon**
*ingeniculata**
*Peridroma saucia**
*Noctua baja**
*haruspica**
haviloe
*lubricans**
*Chorizagrotis auxiliaris**
*agrestis**
*Feltia subgothica**
venerabilis
*vancouverensis**
volubilis

Porosagrotis satiens
*rileyana**
*orthogonia**
*dædalus**
*Carneades recula**
*quadridentata**
*oblongastigma**
*ridingsiana**
*flavidens**
*flavicollis**
brocha
velleripennis
gagates
*messoria**
brumeigera
*munis**
*basiflava**
*tessellata**
albipennis
obeliscoides
*Mamestra juncimacula**
*crotchii**
liquida
rosea
invalida
*trifolii**
cristifera
noverca
*olivacea**
*rectilinea**
*fuscolutea**
Scotogramma inconcinna
Ulolonche fasciata
orbiculata
Xylophasia suffusca
morna
alticola
lignicolor
*semilunata**
Hadena leucoscelis
fractilinea
Hillia senescens
algens
*Pseudanarta flavidens**
*Perigea albolabes**
*Homohadena badistriga**
Oncocnemis dayi
Dryobota stigmata
Hydræcia juvenilis
cataphracta
serrata
*Leucania bicolorata**
pallens
patricia
phragmatidicola
*adonea**
Ufeus plicatus
*Caradrina miranda**
Amphipyra glabella
*Orthodes cynica**
*Himella contrahens**
Tæniocampa trifascia
carminata
Pyrrhia umbra
*Orthosia euroa**
helva
Scoliopteryx libatrix
Litholomia napæa
Xylina georgii
*carbonaria**
Xylomiges dolosa
*perlubens**
Calocampa brucei
Cleophana antipoda
Ingura declinata
Deva purpurigera
Plusia æroides
putnami
biloba
*brassicæa**
angulidens
epigæa
snowi
Caloplusia hochenworthi
devergens
*Stibadium spumosum**
Plagiomimicus expallidus
Schinia albifascia
*Acontia angustipennis**
*candefacta**
aprica
elegantula
Homoptera sp. ?
Eubolina mima

ABERRATION, VARIETY, RACE and FORM.

By Dr. RODRIGUES OTTOLENGUI.

(Continued from page 38, vol. vi, ENT. NEWS.)

Prof. Grote writes: "Variation in color or marking when occurring among typical examples is variety, and varieties should receive a Latin name. For example, *Agrotis wilsonii* occurs in a typical olive-gray variety, and in a red variety (*specialis*). It does not matter that intermediary examples exist. The terms must be employed to designate properly the variety. It is the property of varieties that they intergrade, of species that they do not pass into one another."

Mr. Dyar says: "The variety may intergrade with the normal form, or it may not. In the latter case it is either an aberration, dimorphic form, or local race. * * * * I would always name a dimorphic form or a local race." (I would interrupt myself here to query, under which of these heads Mr. Dyar places the occasional yellow form of *Arctia virgo*, to which he recently gave the name . . . . .)

He continues: "The practice of naming intergrading varieties can so easily be carried to an extreme that I do not like to advise it."

Mr. Neumoegen quotes from Neumoegen and Dyar's Revision of the Bombyces, and recognizes local races, "whether connected by intergrading in the intermediate territory or not."

Let us consider the meaning of intergrading.

I believe that all of us accept the theory of evolution. Then let us imagine as a starting point a "fixed form" as representing a species. It is hardly conceivable that even in the earliest stages Nature ever fashioned two individuals in an identical mould. Even the slightest diversity would have produced what I shall call Individuality. In time these "individualities" would necessarily grow more marked and definite, and the breeding of the more similar individuals with each other, would in time evolve from a fixed form, a variable one. This variableness in like manner would increase in the course of years, until at last the species would be represented by individuals of quite diversified appearance, instead of as originally by creatures superficially similar. When the species was fixed it would be easy to choose one or more specimens to serve as a type. But when the variable pe-

riod had arrived, only a long series of specimens could be truly typical of the species. The next step in this evolution would be the arrival of a form which began to occur in relatively large numbers, and when the time arrived when this new form was represented in reasonable proportion, to the greater number of individuals which still resembled the original type, we would have what I would consider a good variety. This variety would be connected with the ground type by intergrades, but the difference between it and the intergrading forms would be, that it would be more constant than any other selected individual, and reasonably constant as compared with the original type. Evolution might go further, or it might not. If it went on we would get other varieties, with intergrading forms between each. The species would be represented, let us say, by a ground form, the type, and suppose we stop at three varieties with intergrades between. Normally, the varieties would be more fixed and more numerous as they more closely resembled the type. But any variety would be less rare than the intergrades. On the other hand if evolution stopped with one variety, the next step would be the gradual disappearance of the intergrading forms, which of course would also occur in time regardless of the number of varieties thrown off. The first individual appearance of one of these extreme forms being at the moment the most distant from the type, but the forerunner of others similar to it, and thus the precursor of a variety, is what I understand by Aberration.

With this idea of the meaning of intergrades we find that Intergrades are of three classes.

First, the fixed species has become variable, and all the individuals differ essentially from all others. Possibly there may be a rare and extreme form, the "aberration."

Second, there may exist one or more distinct forms called varieties, with intergrading forms between the varieties, and between the type and the variety most similar to it. But given a thousand insects it should be possible to separate the varieties into groups; when it would be seen that in a given lot, under a given name, the individuals would resemble one another as much as the typical specimens would in similar numbers. The intergrades, however, would not do this.

Third, there may exist one or more varieties, each as fixed as the type, but with no intergrades, except where the varieties may

be considered as intergrades between the type and the variety which is farthest removed from the type.

Now, to continue this story of evolution, the time may arrive when the variety begins to breed true to itself. It increases in numbers to such an extent that the individuals mate among themselves, and in time produce others of their kind. It is possible that this occurs gradationally. At first the offspring of the variety would throw back to the type in the majority of cases, but by continued selection of mates of their own kind the variety would increase in numbers until at last it produced only of its own kind. This brings us a new race, and is commonly supposed to inhabit a locality different from the home of the type. That there should be intergrades in intermediate territory is but an argument in favor of the theory of evolution; for environment must play as great a part in the departure from the original type, as does the accentuation of individuality.

But it has been truly said that species breed true to themselves and varieties do not. Then why is this a local race, and not a new species, for we allow of course that Nature by evolution is aiming at new species?

The local race is distinguishable from a new species only by breeding. The imago being the perfect insect, evolutionary changes show there first, and by breeding true in a local race, we mean merely the reproduction of similar imagos, the eggs and larvæ would remain typical. When the eggs and larvæ also were different a new species would have been evolved. My idea of classification then would be thus:

Species.—Individuals markedly similar, though great variableness might exist. Breeding true in all periods of transformation.

Race.—Local variety, markedly different from the specific type, breeding true in the imaginal period.

Variety.—A departure from type of species, occurring in sufficient numbers to indicate a permanency of the form; not breeding true. Intergrades may or may not exist. When they do, the evolution of the variety is not yet complete. Their absence marks the permanency of the varietal form, and the disappearance of the connecting link.

Aberration is the extremest departure from specific type, with or without intergrades, or with or without intermediate varieties. In the first instance it announces a new variety, and in the second that the evolution of varieties is not yet complete.

Form is a word which might be made to apply to such occasional, but constant departures from type as are well recognized under the terms—dimorphic or seasonal forms, and sexual forms.

A monstrosity is not to be confounded with an aberration. The aberration is a normal creature, while the monstrosity is abnormal in some structural feature. It may be in the form of the body, in a commingling of sexual appearances (without necessarily being hermaphroditic), or any alteration which would produce a symmetry. I have seen two monstrosities worthy of mention. One a male, *Papilio turnus*, with one primary marked like *Glaucus*. Another was a *Cecropia*, on the primaries of which was a departure from symmetrical marking, the two, however, being unlike.

Hermaphrodites and hybrids need no description beyond mention.

On the question of the propriety of giving names I would advocate the naming of all well-defined species, varieties, races and perhaps aberrations and forms.

———o———

THOMAS SAY.—III.

By Prof. F. M. WEBSTER, Wooster, Ohio.

In the Winter of 1825–26 there descended the Ohio River from Pittsburg a craft somewhat resembling a western flat boat. The passengers on this primitive vessel were, many of them, noted in the scientific and literary world, among them being Thomas Say, who, with Messrs. Owen, Maclure and others, were making their way to the new home of the recently organized confraternity. This craft landed its passengers at Mt. Vernon, Ind., from whence they were conveyed overland to their destination. From that day to the present the cargo of that primitive craft has been known as "the Boat Load of Knowledge," and one of the persons composing it, Mr. Victor C. Duclos, is still living in New Harmony. A year or more later Say was married to Miss Lucy May Sistare, an accomplished and talented young lady, sister of Mrs. Frances Ball, wife of the well-known jeweler. Dr. Edward Murphy, now living in New Harmony, and an annual attendant at meetings of the American Association for the Advancement of Science, was a guest at the wedding of Mr. and Mrs. Say. The subject of this sketch is described as being fully six

THE HOUSE IN WHICH SAY DIED.

feet in height, slender, with a slight lisp to his articulation, which gave to his naturally gentle voice a musical softness.

Whether the newly-wedded pair at once took up their abode in the house shown in the February number of the NEWS, or in the one illustrated in the present number, I am unable to learn. As it was in the last-mentioned that Say's death took place, it seems quite probable that the other was their first home, and that he afterwards moved into the one here represented. The present illustration shows the house as it appeared in the Winter of 1888–89. A portion of the original structure was burned in 1843, and afterwards rebuilt somewhat differently in point of architecture from the original, but the lower portion fronting the street to the left, as in the engraving, long used as kitchen, dining-room, etc , is as originally built by George Rapp soon after the Rappite community was established in 1815, and afterwards occupied by Thomas Say. With the purchase of the lands and buildings of this community by Robert Owen, in 1824, it passed into the hands of Messrs. Owen and Maclure, and seems to have been transferred to Mr. and Mrs. Say, probably by either Alexander or William Maclure, and later sold by the Says to David Dale Owen. So, we only know that for a time at least it was owned by Say, that it was within its walls that he breathed his last, and that his ashes peacefully rest in a tomb located within the grounds to the rear of the house here shown.

Besides his connection with the Philadelphia Academy of Natural Sciences, he was a foreign member of both the Linnean and Zoological Societies of London. He was also a member of the Masonic Fraternity.

After the death of her husband, Mrs. Say remained for several years in New Harmony, but later moved to New York, and made her home with her sister. A few years before her death, which occurred several years ago, and at the age of eighty-three, she wrote an excellent letter to a friend in New Harmony.

(To be continued.)

CAPT. BEECHEY tells us he saw many asses, heavily laden with Locusts for food, driven into the town of Mesurata, in Tripoli.—"*Exped. to Africa*," p. 107.

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., MARCH, 1895.

PHOTOGRAPHS.

SEVERAL times we have made appeals for photographs for the albums of the American Entomological Society, and are pleased to say that many of our entomological friends kindly responded. Some of our subscribers were under the impression that we only wished those of people who have done much entomological work, either as collectors or writers, but such is not the case, as we would like a photo. of every one interested in entomology. These pictures are of great interest, especially those collected early in the history of the society. Some day some one may wish to publish a history of entomology in the United States, or a series of biographical sketches of entomologists, and such a collection of photos would be indispensible. There is also an inevitable law of Nature that all must obey, and we all know that it is very gratifying to be able to look on the facial lineaments of those friends and correspondents, perhaps never seen, but to whom we have become attached by a community of interests.

☞ The Publication Committee of the American Entomological Society have now in press a complete Supplement to Henshaw's List of Coleoptera of America north of Mexico, published in 1885, including all additions, corrections, etc., since that date; this will take the place of the first and second supplements published in 1887 and 1889 respectively, both of which are now out of print, and at the same time be complete to the end of 1894. Those desiring copies should apply to the Treasurer. The price will be 50 cents per copy. See advertisement on third page of cover.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

The Chinch-Bug.—Bulletin No. 55, from the office of the State Entomologist of Illinois, Prof. S. A. Forbes, is an interesting little pamphlet. It contains a very brief record of the chinch-bug invasion of 1894, the prospects for 1895, a brief statement concerning contagious disease and other experiments, and a series of recommendations for 1895. There are only seven pages of print, but they contain a great deal of history and suggestive information. "The history of chinch-bug injury in Illinois is substantially that of a succession of waves of increase which rise to a highest point and then suddenly fall away to insignificance, the rise of the wave usually occupying from three to five years or more, and its recession requiring only one or two." Prof. Forbes thinks it probable that the culminating point of such a wave has been reached and would feel no surprise if the season of 1895 witnessed its recession. As an important factor in causing the decrease of the insects he recognizes the "white muscardine" disease, due to *Sporotrichum globuliferum*, but he is not enthusiastic as to the possibility of controlling chinch-bug injury by the artificial propagation of the disease. Among a series of conclusions the following are especially interesting:

"1. The white muscardine will not spread among vigorous chinch-bugs in the field in very dry weather to an extent to give this disease any practical value as a means of promptly arresting chinch-bug injury under such conditions. It may be added that chinch-bugs are usually vigorous in dry weather.

"9. The resistant power of healthy chinch-bugs exposed to infection is well shown by the fact that thousands of bugs, young and old, have commonly lived for many days, and even for several weeks, moulting, maturing, copulating and laying their eggs, when shut up in infection boxes which had been heavily stocked with fungus spores from dead insects and had been made in every way as favorable as possible to the development of the disease. The percentage of those that would succumb from day to day was often ridiculously small.

"From all our experimental work thus far completed, I draw the general conclusion that infection with the fungus of the white muscardine of the chinch-bug is an uncertain measure, largely dependent for its practical value upon conditions beyond the influence of the experimenter, and whose occurrence or prevalence it is impossible for him to foresee. It appears, on the other hand, to be so powerful an agency for the destruction of chinch-bugs *en masse* when the weather favors its development and spread, and can be made by proper organization so inexpensive to the individual and to the State, that it is well worthy of the most thoroughgoing scientific study and practical field experimentation."

This expresses the opinion of the conservative students and those who have most carefully studied the nature of fungus diseases in insects, animals or plants. The diseases may be fatally effective under certain circumstances—but we cannot produce the circumstances to order, and while we are waiting for the necessary meteorological conditions the chinch-bugs may destroy the crop. It is well to have the disease in hand, ready for use in favorable seasons, but we must also be prepared with other means as effective alternatives, some of which Prof. Forbes points out. It is a fact, of course, that some insect diseases seem to be to a large extent independent of heat or cold, wet or dry, and seem to be able to spread rapidly in all weathers. Of this type is the disease which attacks the larva of the clover-leaf beetle—*Phytonomus punctatus*. I have watched it for five years in succession, and each year, no matter what the character of the season, the fungus has attacked the half grown larvæ and has swept them away just when they threatened injury to the crop. The factors that facilitate the remarkable spread of this disease are not yet well understood; but they are evidently quite different from those controlling the "white muscardine" of the chinch-bug.

Cabbage Root Maggot, Etc.—On this subject Mr. M. V. Slingerland gives us, in Bulletin 78, of the Cornell Experiment Station, nearly one hundred pages of information. While the cabbage maggots are more especially treated, there are incidental notes on other species and much information is contained on the subject of maggots in general. The Bulletin is really an exhaustive treatise which can only be commended, and the subject of remedies is very fully treated. Practically, the recommendations narrow down to tarred paper cards, put on when the plants are set out to prevent oviposition on the surface at the base of the stem, and to the use of bisulphide of carbon to destroy the insects when they have attacked the plants. For the application of the bisulphide an injector is described which seems practical. I have elsewhere expressed the conviction that bisulphide of carbon would come into much more general use when its range was fully understood, and when its cost was reduced to a point justifying its use in the field. The question of cost has been recently made satisfactory, and now it is in order to ascertain what can be done with the material. Mr. Slingerland has proved its usefulness in one direction; my experiments tend to show that it may be used against plant-lice in the field, under certain circumstances; in the green-house its usefulness can scarcely be over-estimated, while in forcing beds, which can be covered, it may be used as against all, except scale insects. Its use in destroying insects infesting stored grain and seeds is well established.

Oviposition in Cicada hieroglyphica Say.—During the latter part of June, 1894, a small party of entomologists spent three or four days collecting at Anglesea, N. J., where many rarities have been found in times past, and more yet remain to be found in times to come. Among the party were Dr. Skinner and Mr. Hoyer, who were greatly exercised over a more or less persistent "singing," which they claimed must be due to a *Cicada*.

They finally resolved to run down these "singing machines" as they were christened, and by care and patience located them on some old and battered cedar trees, capturing several males of *Cicada hieroglyphica* Say. Later in the day the axe and chisel were brought into use on these same trees, and a number of coleopterous larvæ and pupæ were secured, the trunks presenting a badly wrecked appearance when they were finally abandoned. Next morning I heard a specimen of the *Cicada* "singing," and by careful moving located him. But not him alone; his mate was close by on the bare trunk, busily engaged in ovipositing. I watched the specimen for some time and made sure of what she was doing before capturing her. In the character of the egg punctures there was nothing distinctive, but the selection of the raw surface of the wood where we had been chopping was interesting. The trunk was dead and was soft rotting, and into this soft wood the eggs were laid.

The Codling Moth.—"Insect Life," vol. vii, No. 3, p. 248, contains an instalment of proof, by Mr. Marlatt, that the Codling Moth is double-brooded in many places. This is in response to my suggestion that perhaps it had been too generally assumed that there were two broods, and that we might find the second brood exceptional in some localities. Mr. Marlatt is undoubtedly correct in all his observations, and we may assume two broods as the rule throughout the central and southern United States, and even in southern New Jersey, but where the insect becomes single brooded is yet a question. My own observations were positive, and are not doubted by Mr. Marlatt, but it does seem as if New Brunswick was very abnormally situated and not favorably for the development of insect life. Incidentally, it may be said that it is a miserably poor collecting region for most orders of insects.

A New Chilean Vine-destroying Insect.—About the year 1880 my attention was called to a small vineyard at Quillota half destroyed by some unknown disease. On examining the roots of some of the dead and dying vines I found a curious gall-like body on all of them. These galls or cysts, were sub-spherical in shape, the shell was rough, of stout texture, reddish brown in color, from 5 to 7 millimetres in diameter and full of a liquid of a creamy color and consistency, with a very peculiar and abominable odor. An examination of this fluid under the microscope showed corpuscles floating in it, also what I took to be rudiments of tracheæ. One of the best microscopists that I ever met, my friend Dr. Bruner, also studied these bodies very attentively, but failed to arrive at any definite conclusion. I fancied we were examining the larva of an insect in the act of changing into the pupa state, yet the change was so complete that no rudiment of any organ could be found, except the supposed tracheæ. Various remedies were tried on the vineyard, but in vain, and the vines were uprooted and replaced by lucerne (*Medicago sativa*). I paid no more attention to the matter for some years, but in Nos, some one hundred miles to the south of Quillota, serious damage

was reported as being done in vineyards by the same insect. In 1884 an article appeared on the subject, written by Mr. F. Philippi, who stated that the cysts were produced by mematod worms, and he then described the species as *Heterodera vitis*, giving a drawing of a European species of worm. It would appear that Mr. Philippi does not need to see a species in order to describe it, as he had only the galls or cysts, to build upon, the worms were evolved from his inner consciousness.

About November, 1893, my sons were collecting insects near the Canquenes Baths, and, to my surprise, brought me a lot of the cysts, though there is no vineyard for many miles. I then determined to investigate the matter seriously, and found that some fossorial wasps, of the genera *Trachypus* and *Sphex*, were carrying the cysts to their nests. I next got my boys to find out where the wasps got them from, and so found large numbers in a dry, sandy spot, destitute of vegetation. These were carefully kept in the hopes of breeding the perfect form, but I got no results.

In October and November, 1894, I again collected a lot of cysts, and kept on getting them at intervals of a few days.

Early in December two females emerged, and I got several more where I found the cysts, but as yet I know nothing of the male. The galls or cysts, live on a great variety of Chilean plants, especially on annuals, which explains their presence in places where, during the Summer drought vegetation disappears.

The insect bred from the cysts appears to belong to the genus *Margarodes* Guilding, allied to *Porphyrophora* Brandt, and as Philippi described a worm that never existed I see no reason why we should apply his specific name to an insect whose existence he never suspected:

Margarodes trilobitum spec. nov. ♀.—Body elliptic, of a dull whitish yellow color, thinly covered with soft hairs, most abundant on the dorsal region. On the underside there are short, stiff hairs, that assist in locomotion. There is no distinct head, but at the anterior extremity of the body, beneath, are antennæ, seemingly 8-jointed; the basal joint, however, is pale, soft, and appears to represent the antenniferous tubercle; the other seven joints are of a clear brown color, with verticillate hairs, moniliform and tapering from base to apex. No eyes or ocelli are visible, even under the microscope with an inch lens, nor can any trophi be seen, though there is a depression, near and behind the anterior legs, that probably represents the mouth cavity. The anterior legs are well developed, though small, and armed with strong fossorial claws, probably of use to the insect in escaping from the pupal cyst, and in locomotion, as anchors. The posterior pairs of legs are slender and short, almost rudimental; the tarsi are 3-jointed, the two basal joints anchylosed, the apical freely articulated; each tarsus has one claw, very large relatively to the size of the leg.—EDWYN C. REED.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

IN an English paper, the *Observer*, of July 25, 1813, there is an account of a "swarm of Bees resting themselves on the inside of a lady's parasol." They were hived without any serious injury to the lady.

ON the cover of ENT. NEWS for January, 1895, I notice the figure of a moth named *Composia olympia*. Would it not be better to give the species its older name, *C. fidellissima* H. S.? I have already called Mr. Butler's attention to the fact that he had redescribed Herrich-Schäffer's species, and the types of *C. olympia* are now placed in the British Museum collection as *C. fidellissima* H.-S.—W. SCHAUS.

THE FIRST NUMBER of the new volume (xxii) of the "Transactions" of the American Entomological Society, now in press, will contain the following papers: On the Oribatoidea of the United States, by Nathan Banks; A Monograph of the tribe Bassini, by G. C. Davis; Descriptions of a few new Pimplinæ, by G. C. Davis; Contributions to the Dipterology of North America, by C. H. Tyler Townsend.

THE wild Locusts upon which St. John fed have given rise to great discussion—some authors asserting them to be the fruit of the carob tree, while others maintain they were the true Locusts, and refer to the practice of the Arabs in Syria at the present day. "They who deny insects to have been the food of this holy man," says Hasselquist, "urge that this insect is an unaccustomary and unnatural food; but they would soon be convinced of the contrary, if they would travel hither to Egypt, Arabia, or Syria, and take a meal with the Arabs. Roasted Locusts are at this time eaten by the Arabs, at the proper season, when they can procure them; so that in all probability this dish has been used in the time of St. John. Ancient customs are not here subject to many changes, and the victuals of St. John are not believed unnatural here; and I was assured by a judicious Greek priest that their church had never taken the word in any other sense, and he even laughed at the idea of its being a bird or a plant."—*Cowan's Curious Facts.*

THE entire library of Mr. C. H. T. Townsend, was destroyed by fire in Las Cruces, New Mex., while he was East in January. He will be grateful to correspondents and others who will send him sets of their papers to enable him to replace those destroyed. He has removed to Brownsville, Texas, as Temporary Field Agent of the Division of Entomology U. S. Department of Agriculture.

IN 1811, at Smyrna, at right angles to a flight of Locusts, a man rode forty miles before he got rid of the moving column. This immense flight continued for three days and nights, apparently without intermission. It was computed that the lowest number of Locusts in this swarm must have exceeded 168,608,563,000,000! Captain Beaufort determined that the Locusts of this flight, which he himself saw, if framed into a heap, would have exceeded in magnitude more than a thousand and thirty times the largest pyramid of Egypt; or, if put on the ground close together, in a band of a mile and an eighth in width, would have encircled the globe! This immense swarm caused such a famine in the district of Marwar, that the natives fled for subsistence in a living torrent into Guzerat and Bombay; and out of every hundred of these Marwarees, Captain Carnac estimates, ninety-nine died that year! Near the town of Baroda, these poor people perished at the rate of five hundred a day; and at Ahmedabad, a large city of 200,000 inhabitants, 100,000 died from this awful visitation!—"*Penny Magazine*," 1843, p. 231.

THE Arabs believe the Locusts have a government among themselves similar to that of the bees and ants; and when "Sultan Jeraad," king of the Locusts, rises, the whole mass follow him, and not a solitary straggler is left behind to witness the devastation. Mr. Jackson, himself, evidently believed this from the manner he has narrated it (Morocco, p. 103). An Arab once asserted to this gentleman that he himself had seen the great "Sultan Jeraad," and described his lordship as being larger and more beautifully colored than the ordinary Locust (ibid. p. 106). Capt. Riley also mentions that each flight of Locusts is said to have a king which directs its movements with great regularity (Narrative, p. 235). The Chinese believe the same, and affirm that this leader is the largest individual of the whole swarm. Benjamin Bullifant, in his observations on the Natural History of New England, says: "The Locusts have a kind of regimental discipline, and, as it were, commanders, which show greater and more splendid wings than the common ones, and arise first when pursued by fowls, or the feet of a traveler, as I have often seriously remarked." The truth, however, is found in the Bible: They have no king (Prov. xxx, 27).—*Cowan's Curious Facts.*

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. THE AMERICAN NATURALIST. Philadelphia, January, 1895.—The use of parasitic and predaceous insects, C. M. Weed.

2. NATURE. London, Jan. 10, 1895.—The bird-winged butterflies of the East, W. F. Kirby, figs.

3. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, January, 1895.—Descriptions of some new species of Heterocera from the Eastern Islands and Tropical America, H. Druce.—February, 1895. On the luminosity of midges (Chironomidæ), P. Schmidt (transl. from Zool. Jahrb.). On some insects collected in the State of Chihuahua, Mexico, T. D. A. Cockerell.

4. COMPTE RENDU. L'ACADEMIE DES SCIENCES. Paris, Dec. 31, 1894. —On the nests of *Vespa crabro* L.—order of appearance of the first alveoli, C. Janet.

5. PROCEEDINGS OF THE U. S. NATIONAL MUSEUM, xviii, No. 1041. Washington, Jan. 16, 1895.—Two new species of beetles of the Tenebrionid genus *Echocerus*, F. H. Chittenden.

6. ENTOMOLOGISK TIDSKRIFT, xv, 1-4. Stockholm, 1894.—On the structure and habits of *Hemimerus talpoides* Walk., Dr. H. J. Hansen, 2 pls. Lipuridæ from Florida, H. Schött. Contribution to the knowledge of the Aradidæ, E. Bergroth. Revision of the genus *Corisa* Latr. with respect to the Scandinavian species, H. D. J. Wallengren. Variability of *Argynnis aphirape* Hübn. var. *ossianus* Herbst, J. Meves, figs. [Economic entomology], S. Lampa, 1 pl., figs. Practical entomology in Ryssland, C. Grill. *Isaria densa* (Link.) Fries, parasitic on *Melolontha vulgaris* L., id. Parasiticida, S. Lampa. Revision of the Pseudoneuroptera of Scandinavia, H. D. J. Wallengren.

7. BULLETIN FROM THE LABORATORIES OF NATURAL HISTORY OF THE STATE UNIVERSITY OF IOWA iv, 1.—Supplement to the "List of the Coleoptera of Iowa City and vicinity," H. F. Wickham.

8. ENTOMOLOGISCHE NACHRICHTEN, xx, 24. Berlin, December, 1894. —Karl Lindeman's "Ueber den Bau des Skelettes der Coleopteren; über den Bau des Thorax derselben," a forgotten work, C. Verhoeff.

9. MITTHEILUNGEN DER SCHWEIZERISCHEN ENTOMOLOGISCHEN GESELLSCHAFT, ix, 4. Schaffhausen, October, 1894.—On the classification of the Cetonidæ, Dr. G. Schoch. Coleoptera Helvetica (cont.), Dr. G. Stierlin.

10. THE ZOOLOGICAL RECORD, Volume the Thirtieth. Being records of zoological literature relating chiefly to the year 1893. Edited by D. Sharp, M. A., etc. London: Gurney & Jackson, 1894.—Arachnida, 33 pp. Myriopoda and Prototracheata, 11 pp. by R. I. Pocock. Insecta, 371 pp. by D. Sharp.

11. ARCHIV FUR NATURGESCHICHTE, lx, I, 2. Berlin, July, 1894.—Comparative morphology of the abdomen of the male and female Lampyridæ, Cantharidæ and Malachidæ, Dr. C. Verhoeff, 4 pls.—lx, II, 2, November, 1894. Summary of the scientific results in the domain of Entomology during the year 1893, Dr. P. Bertkau, 276 pp.

12. ZOOLOGISCHER ANZEIGER. Leipsic, Jan. 14, 1895.—On ampulla-like blood-circulatory organs in the head of different Orthoptera, M. Pawlowa.—January 21. Contributions to classification and development of fresh water mites, R. Piersig.

13. SCIENCE. New York, Jan. 25, 1895.—On certain habits and instincts of social insects, M. Hartog.

14. LA FAUNE DES CADAVRES.—Application de l'Entomologie à la Médecine Légale par P. Megnin. Paris, G. Masson, Gauthier-Villars et fils. Not dated. Received Jan. 29, 1895.—Forming a volume of the Encyclopédie scientifiique des Aide-Mémoire; 214 pp , figs.

15. BIOLOGIA CENTRALI-AMERICANA. Pt. cxix. London, November, 1894.—Arachnida Araneidea: pl. xvi, O. P. Cambridge. Coleoptera: vol. ii, pt. 1, pp. 465-488, D. Sharp [Colydiidæ]; vol. iii, pt. 1, pp. 265-296, G. C. Champion [Serricornia]. Hymenoptera: vol. ii, pp. 313-328, P. Cameron [Mutillidæ]. Lepidoptera-Rhopalocera: vol. ii, pp. 377-384, pl. lxxxiii, F. D. Godman & O. Salvin [Hesperidæ]. Rhynchota Homoptera: vol. ii, pl. iii, W. W. Fowler [Membracidæ].

16. THE NATURALISTS' JOURNAL. London, December, 1894.—Pupa hunting (cont.), H. G. Knaggs.—February, 1895. Pupa hunting (cont.), H. G. Knaggs. *Abraxas grossulariata* and its varieties, S. L. Mosley, figs.

17. SPECIES DES HYMENOPTERES D'EUROPE ET D'ALGERIE. Fondé par Edmond André et continué sous la direction scientifique de Ernest André; 49e fasc. Paris, M. Dubosclard, Jan. 1, 1895.—Contains pp. 401-480, pls. xii-xiv, of vol. v, Braconidæ.

18. THE ENTOMOLOGIST'S RECORD. London, Jan. 15, 1895.—About larvæ, G. M. A. Hewett. The life-history of a lepidopterous insect—chap. iii. Parthenogenesis or Agamogenesis (cont.), J. W. Tutt.—Feb. 1, 1895. Generic names in the Noctuidæ, A. R. Grote. Discussion on the nature of certain colors, W. S. Riding, R. Freer, J. W. Tutt.

19. JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY, ii, 4, December, 1894.—Notes on Phalangidæ, N. Banks. Note on the development of *Deltocephalus inimicus* Say, F. M. Webster. Preliminary revision of the Bombyces of America north of Mexico, B. Neumoegen and H. G. Dyar. Preliminary hand-book of the Coleoptera of northeastern America, C. W. Leng and W. Beutenmüller, 1 pl. On the use of bisulphide, A. P. Morse. An exodus of water beetles, W. T. Davis. Note on *Xiphidium nemorale*, W. Beutenmüller.

20. KNOWLEDGE. London, Feb. 1, 1895.—The Hessian fly, E. A. Butler, figs.

21. BULLETIN 78. Cornell University Agricultural Experiment Station, Entom. Div.—The cabbage-root maggot, with notes on the onion maggot and allied insects, M. V. Slingerland, pp. 481-577, 18 figs.

22. INSEKTEN-BORSE. Leipsic, Nov. 15, 1894.—On the bases of variation and aberration of the imago among Lepidoptera (cont.), Dr. M. Standfuss.

23. THE ENTOMOLOGIST. London, February, 1895.—Dr. F. B. White (with portrait). The sense organs of insects: a speculation, J. Watson. Jumping beans and jumping eggs, C. C. Hopley. The cold Autumn of 1894, and its effects on certain species of the genus *Vanessa*, J. Arkle. Wood naphtha as a relaxing medium, R. South.

24. ANNUAL REPORT OF THE NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS, 1894. Las Cruces, N. M.—Entomology, T. D. A. Cockerell.—Bulletin No. 15, January, 1895. Entomological observations in 1894, Life zones in New Mexico, Entomological diary at Santa Fé, T. D. A. Cockerell.

25. PSYCHE. Cambridge, Mass., February, 1895.—Rehabilitation of *Podisma* Latreille, S. H. Scudder. Two new species of *Entomobrya*, F. L. Harvey, figs. The Tipulid genera *Bittacomorpha* and *Pedicia*, J. M. Aldrich, fig. Gall of *Eurytoma* sp. on the cat's-clawthorn, C. H. Tyler Townsend.

26. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxviii, 13. Brussels, 1894,—Retiring President's address—the Ichneumonidæ, M. Tosquinet.—xxxix, 1, Jan. 31, 1895. New ants from various localities, especially from Australia, A. Forel.

27. TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, xxi, 3. Philadelphia, June-September, 1894.—New species of Noctuidæ from tropical America, W. Schaus. A catalogue of the described Jassoidea of North America, E. P. Van Duzee. Descriptions of new parasitic Hymenoptera, W. H. Ashmead.

28. THE CANADIAN ENTOMOLOGIST. London, Ont., February, 1895. —The Coleoptera of Canada—vii. The Cucujidæ of Ontario and Quebec, H. F. Wickham, figs. Summary of the U. S. Phasmidæ, S. H. Scudder. *Alypia mariposa* larva, H. G. Dyar. *Actias luna*, H. H. Lyman. Canadian Coccidæ, T. D. A. Cockerell. Protective mimicry in spiders, F. M. Webster. *Preptos*, *Tamphana* and *Arotros*--a review, H. G. Dyar. On the Coleoptera of New Mexico and Arizona, including biologic and other notes, C. H. T. Townsend. *Acridium americanum*, J. A. Moffat.

29. THE ENTOMOLOGIST'S MONTHLY MAGAZINE. London, February, 1895.—Pre-occupied names and genera in the micro-lepidoptera, Rt. Hon. Lord Walsingham. Relaxing and setting insects, W. Farren.

30. INSECT LIFE, vii, 3. Washington. Issued December, 1894. Received Feb. 11, 1895.—Damage by the American locust, L. O. Howard, figs. Chinch-bug observations in Iowa in 1894, H. Osborn. The hibernation of the chinch-bug, C. L. Marlatt. The maple Pseudococcus (*P. aceris* Geoff.), L. O. Howard, figs. Notes on cotton insects found in Mississippi (cont.), W. H. Ashmead. The codling moth double-brooded, C. L. Marlatt. A new saw-fly which is injurious to hollyhocks, T. D. A. Cockerell. Note on *Hylesinus sericeus*, E. A. Schwarz, fig. A new parasite of *Mytilaspis pomorum*, L. O. Howard. The patent on the hydrocyanic acid gas process declared invalid, D. W. Coquillett. A new pear insect, fig. Scorpions, centipedes and tarantulas. General notes.

31. CONTRIBUTIONS TO SCIENCE by Charles J. Maynard, vol. ii, 1. Newtonville, Mass., July, 1893.—Notes on a singular specimen of the Polyphemus moth, *Attacus polyphemus*, pp. 36–38, figs.—No. 4, December, 1894. Defensive glands in a Bahama species of Phasma (pp. 191–193).

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes that the paper in question contains descriptions of new North American forms.

THE GENERAL SUBJECT.

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Doings of Societies.

PHILADELPHIA, Feb. 12, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Dr. Henry Skinner, 716 N. Twentieth Street. Members present: Messrs. Bland, Fox, Johnson, Dr. Griffith, Hoyer, Boerner, Trescher, E. Wenzel, Dr. Castle, Haimbach, Seeber, H. W. Wenzel, Laurent and Schmitz. Honorary members: Drs. Geo. H. Horn, John B. Smith and Henry Skinner. Meeting called to order at 8.30 P.M., President Bland presiding. Dr. Horn mentioned that the cocoons exhibited at the last meeting by Mr. Seeber as being found in palm wood are probably formed by a species of *Sphenophorus*, as some of the species are known to transform in such places and make cocoons as described. He then exhibited a fine and complete series of *Pleocoma* and *Plusiotis*, giving the life-history of *Pleocoma*, stating that nearly all the species came from California, south of San Francisco. *Plusiotis woodii*, of which he exhibited a fine pair, were captured along the Rio Grande, Texas, by Dr. Wood, of the University of Pennsylvania.

Prof. Smith stated that he had discovered an entirely new sexual character in a species of Noctuidæ, *Remigia latipes*, which consisted of a tuft of hair, resembling a brush, situated on the prothorax, which does not exist in any of the other species; he further stated that there would never be a true classification of Lepidoptera until a collection large enough should be formed, from which specimens could be taken and denuded of their scales to allow of a thorough examination, instead of depending entirely on their superficial characters, as is mostly the case at present.

Mr. Bland gave an interesting and graphic account of a trip he had made during last July along the banks of the Poho Poko Creek, which empties into the Lehigh River at Parryville, Pa., finding a few specimens of Carabidæ, several of *Berosus*, *Dineutes*, *Haliplus*, *Dryops* and a number of *Elmis*.

Mr. Fox exhibited a bee, *Eulema dimidiata*, which he had recently received from Mexico, calling attention to the remarkable development of its tongue, which equaled the length of the body; he also exhibited a drawing of the tongue, showing the peculiar brush-like tip, which is present in the typical bees.

Mr. Johnson exhibited specimens of Diptera and Hymenoptera, calling attention to the mimicry of these species; this brought forth a general discussion on the powers of mimicry in the insect world; various cases being cited where it had been observed. Dr. Horn, however, questioned the correctness of the use of the term, stating that in his opinion it was nothing more than a resemblance, which is very likely the true definition, as it seems very improbable that any insect is itself responsible for the imitative qualities it may possess, as it is no doubt simply thus endowed by nature for its self-protection, in the absence of the sense of reasoning.

There being no further business the meeting adjourned to partake of an excellent banquet provided by Dr. Skinner.

This meeting will no doubt prove a memorable one to its members, notably every member being present, and the spirit of the meeting being of a characteristically scientific nature, the discussions continuing even after the members had done ample justice to the viands set before them. Dr. Horn occupied the chair of honor, Dr. Skinner acting as toast-master and calling on Drs. Horn and Smith, and Messrs. Bland and H. W. Wenzel; the responses bringing forth many interesting historical facts pertaining to entomology probably never recorded.

THEO. H. SCHMITZ, *Secretary*.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

JANUARY 24, 1895.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Members present: Horn, E. T. Cresson, Skinner, Welles, Seiss, Calvert, Laurent, Johnson, Fox, Ridings. Associates: Dr. Castle and Mr. Reinick. Mr. Fox exhibited specimens of *Elis tricincta* and *Pompilus juxta*, taken at Lake Worth, Florida, by Mrs. A. T. Slosson. These have not been found in the United States prior to this time, being West Indian species. Mr.

Johnson spoke of his studies of some Diptera as follows: The results of my recent study of the genus *Stratiomyia* may be summarized as follows: the number of species in Osten Sacken's catalogue recorded north of Mexico is twenty-nine; to this number Bigot has since added six, a total of thirty-five. Of these fourteen have been reduced to synonymy, six remain unidentified, one has been referred to a new genus, and two new species have been described. This leaves for our consideration sixteen species; these are divided into three groups, the first Stratiomyia, *s. str.*, contains five species; the second, Thereodonta, two; and the third, Normula, nine. The color pattern is still largely used in distinguishing species, but in almost every case the male and female have both been studied.

Dr. Horn stated that his paper on *Scymnus* was nearly completed, and that he hoped to present it at the next meeting. Mr. Calvert quoted from Dr. Riley's presidential address to the Ent. Society of Washington of February, 1894, that no species of Odonata habitually hibernated, and stated that *Sympycna fusca* has been found to regularly pass the Winter in the imago state, in numbers, in France.

Dr. HENRY SKINNER, *Recorder.*

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

Preparatory stages of Phlegethontius cingulata.

By HARRISON G. DYAR.

I find that the life-history of this Sphinx has not been written. The larvæ occurred commonly on morning-glory vines near Honolulu, Hawaiian Islands.

Egg.—Elliptical, nearly spherical, not flattened; smooth, shining, nearly colorless and translucent, with a greenish tinge; size 1.3 x 1.1 x 1.1 mm. Under a half inch objective the surface is smooth, shining, covered with circular shallow pits of varying size and irregularly distributed. Found on a leaf of *Ipomœa tuberculata* Roem. and Sch.

First stage.—On hatching, entirely white, with a black horn. Head rounded, not shining, pale greenish yellow, mouth a little darker, ocelli brown; width .55 mm. Body cylindrical, smooth, shining, distinctly annulated, uniform whitish, the food giving a dark green shade by transparency. A faint, narrow, white subdorsal line ending at the horn. Horn straight, thick, blunt at the end, black and minutely setose, its length 1.5 mm.

Second stage.—Head rounded, pale green, with many white setiferous granulations; ocelli black; width 1 mm. Body granular, the granules setiferous, white; color pale green; caudal horn black spinose, tapering, 2.5 mm. long.

Third stage (dimorphic).—Head rounded, green, with conical white granulations; a faint yellowish line runs up before the ocelli, in the brown form followed by a black shade posteriorly; width 1.8 mm. Body cylindrical, annulated, covered with white granulations; a very faint subdorsal line and indications of the seven oblique lateral lines, in the brown form preceded by black shades; spiracles surrounded by black and similarly colored marks on all the feet; spiracles ocherous.

Fourth stage.—Head uniform light green, thickly covered with small, round, white tubercles; a vertical whitish line before the black ocelli, width 3.2 mm. Body roughened with many white granulations like those on the head, more elongated on the caudal horn and bearing there minute setæ; color green, with a whitish shading and seven oblique lateral lines on joints 5–11, the last produced over joint 12 to the base of the horn, the others reaching from before the spiracle to subdorsal region, but continued back on the succeeding segment by a faint white shade. Lines pale yellow, preceded by a bright green shade and marked centrally by a small dash of light purple. Horn green, yellow at tip; thoracic feet red-brown; spiracles rusty brown, bordered narrowly with ocher.

Fifth stage (green form).—Head higher than wide, rounded, flat in front, smooth, shagreened; leaf green, with a broad, black, vertical band on each side covering the ocelli, which it just encloses by its well-defined anterior border; before it the ground color assumes a yellowish tint and preceding this yellowish shade is a faint, blackish clouded band; width 6 mm. Body plump and robust, the segments annulated; head slightly retracted below joint 2, and joint 2 below joint 3; but body elsewhere of uniform size. Horn large, tapering, curved backward, covered with short tubercles which bear very minute setæ. Body smooth, colored leaf green, a little mottled with whitish, with the following purplish brown mottled marks: a patch covering the thoracic feet and their bases; an oblique, subventral patch on joint 6 analogous to the marks covering the abdominal feet, each of which extends upward and forward obliquely in a broad band, ending at the anterior border of the segment; the one covering the anal foot extends along subventrally to the anterior edge of joint 11; subanal plate green, contrasting with the nearly black bases of the feet, bordered above by a faint brown subdorsal shade; a broad, subdorsal band, enlarged centrally on each segment, begins behind the cervical shield, widens and sends out an arm obliquely forward and downward on joints 5–11, each of which ends at the anterior edge of the segment before the spiracle. The band narrows on joint 11 posteriorly and ends at the horn, which is colored blackish brown with small greenish tip. The lateral branches of the subdorsal band are edged posteriorly with white, representing the usual oblique stripes; spiracles black, with a linear ocherous border and central dividing line, those on joints 5–12 surrounded by a circular black patch, contiguous (except on joint 12) to the oblique lateral lines. Length about 115 mm.; of horn 7 mm.

(Brown form) Head flesh-brown; a vertical black stripe over ocelli and

another near clypeus; sutures and jaws black. Body flesh-brown, densely covered with small, rounded, purplish black, confluent spots, almost covering the surface. Feet, cervical shield and venter entirely purplish black; on joints 3 and 4 a broad dorsal and narrow subdorsal bright brown band. Lateral oblique lines indicated by heavier mottlings above and predominence of the ground color below; spiracles black, with orange-red and central line, surrounded by black.

Pupa.—Tongue case large, distant from the body, extending to near the middle of the cases then recurved along the body to near its origin, rounded and a little enlarged at the end; cremaster broad, flat, narrowing laterally and ending in four short spines; color bright mahogany-red, darker on tongue case, cremaster nearly black. Length 64 mm.; width of thorax 15 mm.; length of tongue case about 47 mm.; distance from origin to joint of recurvature 21 mm.; diameter of tongue case 2.5 mm.

THE COMPOUND EYE.

By E. BRENDEL.

The anatomical and physiological comparison of the organ of vision is certainly a most difficult undertaking. Though the study of the eye of the vertebrate animals has progressed during the last century in an admirable way, notwithstanding there are left many obscure points which will perhaps never be elucidated. We do not know anything concerning the reversion of the image, nor the physiology of the cones, or bacillæ. The art of photography has helped us considerably in proving the law of vision. The momentary retension of an image by the exposure to the eye of a living vertebrate animal for the reception of the projection of an object on the retina has been proved in a chemical way by developing and fixing the image on the retina, demonstrating a physiological analogy of the photographic camera and the eye.

The image in the camera appears to us not convex, but as a geometrical projection, if the object is in all its parts equally illuminated, that is, shadeless. The presence of light and shade with its delicate gradation alone produce the imagination of rotundity in a rather defective way.

In the human eye the image is also plain when we use only one eye, but there are other additional factors than the shades of the object producing the perception of rotundity. There is our experience by touch assisting our eye—then the very defect of our vision, seeing sharply only such parts of the object which lie nearest to the optical axis is partly corrected by the combined use of our two eyes as each one receives an image from a different standpoint. The axes of vision of our eyes are convergent and adjustable. One eye sees parts of the object which the other cannot see; but the congruity of the images makes us in reality see more than the geometrical projection of the object on the single retina and corrects the flatness of the image. The photographer imitates nature by

combining two such images into one, the stereoscopic pictures which bring out the convexity of object provided we use each eye for the pictures on its own side only.

The mobility of the eyeball and the changes of the form of the lens by the ciliary muscles are other factors assisting the perception of rotundity.

Now, in the eyes of the insects all these accommodations to vision are wanting. The eyes are immobile, either single isolated eyelets (ocelli) or arranged in semi-globular clusters (compound eyes). The axes of vision of the eyelets in one cluster are divergent, nearing parallelism only with its next neighbor—eyelet. The form of the eyelet is not a globe, but a cylindrical cone, or, a better idea would be furnished by expunging from the globular eye a conical piece of the diameter of the cornea through the centre to the retina. The sensitive retinal portion is for that reason not so extensive as the corneal portion. The length of the cone is reversely proportional to the convexity of the cornea; the more convex the cornea the shorter the focus, the shorter the cone, the more divergent the axes of vision of two neighbor-eyelets, the more convex the cluster of the eyelet and the smaller the number of eyelets in one cluster. The reverse holds good in the same manner; the less convex the cornea the more numerous the eyelets and the less divergent are the axes of vision.

The isolated ocelli seem to be more resembling the form of the vertebrate eye. In the spiders they are arranged by fours in two transverse curves on the front and on the vertex of the head, which is much more movable than in the hexapodal insects and the visual axes by twos are supposed to be almost parallel, consequently have a greater range of vision.

As we do not know the physiological action of the parts of the retina in our own eye, much less we should speculate on the anatomy of the insect eye. We do not know even the situation of the sensitive parts, but we certainly know that the vision is very good, and the optical law are as applicant as with our own eye, and that the sensitive part must be situated at the end of the transparent part.

The brainal mass is transverse, connecting the ocelli and eye-clusters. One may suspect that there is a compensation of at least two neighboring ocelli for the formation of a perspective connected image of an object.

The spherical arrangement of the eyelets of a cluster as they are represented by the eyes of hexapod orders of insects, and in the fossil trilobites necessitate the more conical form of the single eyelet with a very limited range of vision and a divergence of the optical axes. If there is no compensation of neighboring eyelets, or of eyelets of the two clusters with parallel or convergent axes of vision as they really exist in large, prominent clusters, or where the cluster occupy almost the whole head the single eyelet would see only a small part of the object, and the several partial images could not form a truly connected image of the whole object.

The idea of unconnected vision was held by Johannes Müller, and is known as the theory of the mosaic vision, which is, I think, generally re-

jected. The clusters of each side is connected by a rather massive transverse cylinder of nerve- or brain-matter, an apparently unnecessary arrangement—if the cluster or some of their respective eyelet would not co-operate. Such a co-operation would certainly only exist between eyelets with parallel or convergent axes of vision and the clusters would be very large and prominent, exhibiting parallel or convergent eyelets all along the circumference of both the clusters. This is the condition of the eyes in all fast moving insects as in *Cicindela*, *Cistela*, dipterous, neuropterous and lepidopterous insects in their imago state, and these insects avoid collisions by deviating in a distance of several meters, while others, as some Tenebrionidæ and all those living in dark places or moving slowly possess flat lateral clusters, often situated on the inferior surface of the head.

Probably the peripheral eyelets of the large clusters of fast moving insects would be useful for perceiving distant objects and the eyelets nearer the centre of the cluster, single or combined with its neighbor-eyelet, but unable to receive the same rays as the opposite cluster for near lateral objects only.

The movements of the *Cicindela* indicate the use of the peripheral eyelets for a clearer perception of objects. When approached sideways they do not move as quickly away, but turn their front or back towards the approaching object evidently for a clearer inspection. But there is another habit to be considered: one can observe the *Cicindela* for quite a length of time without alarming the insect, but as soon as you move its motions signalize that you are seen. When they are in motion, or the object is in motion, they evidently see quicker. When we look at the sun or other brightly illuminated object and turn our eyes toward a dark surface or close our eyes, we see a number of those bright objects which appear even after we annihilate the images by opening our eyes and closing them again; or, in other words, the retina retains for a certain time the images received. If we admit the existence of the law of the retinal retention of images in the arthropod as well as in the vertebrate eye, the photographer may demonstrate the production of a continued image in the eye clusters by the successive momentary exposure of a fast moving animal to the photographic plates and the effect of the moving series of pictures on our eyes when viewed through a small hole in a piece of pasteboard. We see then only one image of the animal in lively motion. When the image of a moving object falls successively on the retinula of a row of eyelets, or when the insect is in motion exposing the retina of a row of eyelets to the image of an object at rest the effect must be the same.

These are certainly all merely presumptions based on the physiological actions of the vertebrate eye, but I do not see any reason to doubt that the laws and facts of vision in the insect eye be based on different principles. The structure of the compound eye is so different, that one might doubt whether insects see at all or see multiple images or only small parts

of an object, but by applying the retinal compensation and the retention of images a great many otherwise incomprehensible points may become reasonably clear, notwithstanding that we do not know for certain the locality of the projected image as we do on the retina of the vertebrate eye. We surely must be convinced by even the most superficial observation that insects see, and see very sharply. It may be even pardonable to presume that insects are not color blind, and that not merely shades direct their motions.

Accessory assistance by touch or other senses, even mental co-operation ought not, in my opinion, be excluded or flatly denied. Moreover, to call, as some pretentious pastors do, the non-meaning term "instinct" to the assistance of science, is simply covering ignorance and indolence, "denn wo Begriffe fehlen da stellt zur recten Zeit ein Wort sich ein."—Goethe's Faust.

Remark.—Those who have had opportunity to observe blind cave insects and the effect of light on them could furnish valuable suggestions on that subject.

———o———

LARVA OF ORNEODES.

By H. G. DYAR.

I am able to add a reference to the Orneodidæ to my article in the February number of the NEWS, pages 38–40. The larvæ were received just too late to make the correction.

From the larval characters, *Orneodes hexadactyla* belongs to the most typical section of the microlepidoptera. I have received also a number of larvæ of Pterophoridæ. Some of them possess the characters of the micros, so that my super-families Microlepidoptera and Anthrocerina are not sharply separated. This indicates that the Orneodidæ and Pterophoridæ are not so very distantly related.

I have also before me the larva of *Heterogynis paradoxa.* As it is an exposed feeder, it has lost the circle of hooks on the prolegs and possesses the structure of the "Macrolepidoptera." Nevertheless, the larval setæ show it to belong to the micros, as do also the characters of venation.

This number contains thirty-six pages.

ENTOMOLOGICAL NEWS for February, was mailed January 31, 1895.

MONUMENT ERECTED IN MEMORY OF THOMAS SAY.

ENTOMOLOGICAL NEWS

AND

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THOMAS SAY.—IV.

By Prof. F. M. WEBSTER, Ohio.

The vault in which are deposited all that remains of the "Father of American Entomology," with the monument erected to his memory by Alexander Maclure, brother of William Maclure, is located in the rear of the house in which Thomas Say breathed his last on Oct. 10, 1834, and which was shown in the illustration in the March number of the NEWS. The view of the vault and monument here presented is taken from Main Street and looking slightly south of west. The monument is of white marble, about six feet in height, the sculpture being sufficiently indicated by the engraving. It was erected in 1846, twelve years after the death of Say, by Alexander Maclure, at the request of his brother William, and bears the following inscriptions:

EAST FACE.

Thomas Say. The Naturalist. Born in Philadelphia, July 27, 1787. Died at New Harmony, October 10, 1834.

SOUTH FACE.

One of the founders of the Academy of Natural Sciences of Philadelphia, January 25, 1812.

WEST FACE.

The friend and companion of William Maclure, whose surviving brother erected this monument. 1846--A.M.

NORTH FACE.

Votary of Nature even from a child,
He sought her presence in the trackless wild;
To him the shell, the insect, and the flower
Were bright and cherished emblems of her power.
In her he saw a spirit all divine,
And worshipped like a pilgrim at her shrine.

The vault is of brick, arched, and entirely covered over with earth and grassy sward, its dimensions being about twelve by fourteen feet, the length extending from north to south, and the monument standing at the north end. The elevation of the mound is about three feet, while the excavation below ground is about six feet. Along the two sides and north end of this crypt, on the inside, there extend two platforms or terraces of solid brickwork, and on those on the east and west sides are deposited the remains of Alexander Maclure, Anna Maclure, and Margaret Maclure, brother and sisters of William Maclure, while on one of those on the north end, and nearest to the monument, are slowly mouldering away the mortal remains of Thomas Say, they having been disinterred and brought from their original resting-place in the cemetery by Mr. Maclure, at present represented by the bones only, all else being in a state of complete decay. Until within a year the vault contained also the remains of Mr. David Dale Owen, but these have recently been removed and interred in a cemetery near New Harmony. Very few persons have ever had an opportunity of viewing the inside of this crypt, and for a description, as well as a number of other points of information in this series of sketches, I am indebted to my esteemed friend, Mr. John B. Elliott, of New Harmony.

The writer will never forget a most impressive and beautiful view of the tomb and monument witnessed by him on a bright frosty morning in late November several years ago. As the guest of Colonel and Mrs Owen, he was assigned a room looking out upon the grounds included in the accompanying engraving. The night had been clear and frosty, the crystals forming thickly over every exposed object and increasing the dimensions of the

slender twigs and kindered objects until they appeared several times magnified. On throwing back the shutters in the early morning the whole area—the tomb and monument especially, as appeared to me, were shrouded in purest white, thickly bespangled over with the most brilliant jewels of silver and gold—a fitting mantle, I thought, for the pure and unselfish man who slept so calmly and peacefully beneath its folds.

———o———

NOTES ON TYPES OF NORTH AMERICAN GEOMETRINA IN EUROPEAN COLLECTIONS.—V.

By GEO. D. HULST.

(Continued from page 73, vol. vi, ENT. NEWS)

Patridava tensaria Wlk. 1689, is *Tornos approximaria* Pack. and is the same as *Exelis pyrolaria* Gn. i, 324. *Tornos infumataria* Grt., the type in the Museum is the same species.

Lepiodes scolopacinaria Gn. i, 360, is *Tornos rubiginosus* Morr.

Scotosia inexplicata Wlk. 1722, is a Noctuid upon the authority of Mr. Hampson, and I agree with him. The type lacks one front wing, and is otherwise in poor condition. Mr. Butler writes me: "I have placed it tentatively in the genus *Anarta*, which it much resembles in pattern."

Apicia denticulata Wlk. Sup. 1544. is also a Noctuid. "It is the rusty form of *Pleonectyptera pyralis* Hbn., previously described by Walker as *irrecta*, and by Grote as *geometralis*." Mr. Hampton called my attention to the species, and Dr. Butler independently wrote me concerning it, and gave the synonym which I quote.

Cidaria rigidata Wlk. 1727, is a synonym of *Anticlea vasaliata* Gn. ii, 407.

Cidaria explagiata Wlk. 1728, *Larentia arctica* Zell., *Geometra albimacularia* Frey, and *Cidaria fulvida* Butler are put by Mr. Warren as synonymous of *Perizoma tæniata* Steph. There is probably some mistake here. Walker, in his description, says his type is from Nova Scotia. If I am not mistaken in my notes, the Museum type is from St. Petersburgh, Russia.

Drepanodes siculata Gn. i, 67, is the same as *D. perizonata* Hulst.

Apicia juncturaria Gn. i, 88, is *Drepanodes effascinaria* Hulst. *Apicia incopularia* Gn. i, 89, is the same species.

Apicia spinitaria Gn. i, 85, is a South American insect, which I do not believe was ever taken in North America. It is, I think, an undoubted error in locality.

Metrocampa prægrandaria Gn. i, 128, is the same as *M. perlata* Gn., and has priority on the page.

Ellopia placearia Gn. i, 132, is very near to *Tetracis mellitularia* Hulst. The latter is at best a variety.

Eurymene emargitaria Gn. i, 145, is the same as *E. arrogaria* Hulst, and is not *E. fervidaria* H.-Sch.

The type of *Metanema forficaria* Gn. i, 112, is lost. I have little doubt it is the same as *Tetracis ægrotata* Gn. The type of *Timandra viridipennaria* may also be lost. It ought, by color, to be easily identified, but I cannot locate it. It may possibly be *Nemoria pistacearia* Gn., or *N. tepperaria* Hulst.

The type of *Bronchelia dendraria* Gn. is lost, but there is no doubt that it is a variety of *B. hortaria*. *Tephrosia amplaria* Wlk. 405, is the same species, as is also *Bronchelia disserptaria* Wlk. 451.

Tephrina muscariata Gn. ii, 98, is *Semiothisa delectata* Hulst.

Selidosema fœminaria ii, 149, is not a synonym or variety of *S. juturnaria* Gn. ii, 147, but a dark form of *Tephrosia celataria* Hulst.

Aspilates sigmaria Gn. ii, 184, and *Ellopia aniusaria* Wlk. 1507, are the same as *Eufitchia ribearia* Fitch.

Eupithecia subapicata Gn. ii, 331, is the same as *E. occidentalis* Pack.

Melanippe iduata Gn. ii, 403, is *Rheumaptera fluctuata* L.

The type of *Coremia convallaria* Gn. ii, 410, is lost. It seems to me it must be *Ochyria lignicolorata* Pack. from the description. The existence of the three rows of black points seems conclusive.

The type of *Coremia plebeculata* Gn. ii. 417, is lost. I feel certain, however, it is the same as *Ochyria carneata* Pack.

Spargania magnoliata Gn. ii, 455, is one with *Glaucopteryx cumulatilis* Grt.

Cidaria mancipata Gn. ii, 468, is probably *Petrophora leoninata* Pack. The type is lost.

The type of *Eubolia custodiata* Gn. ii, 491, is lost.

The following species, accidently overlooked by me while at the Museum, were determined for me by Dr. Butler, and they have been given their places in the body of this article :

Tephrina retectata Wlk. 959 = *Psamatodes eremiata* Gn. *Cidaria albopunctata* Morr. = *Caripeta divisata* Wlk. I had already determined this from the description. *Aspilates intermicata* Wlk. 1076 = *A. pervaria* Pack. *Ennomos concisaria* Wlk. 1551 = *Endropia serrata* Dru. This also I had located from the description. *Camptogramma abruptata* Wlk. = *Semiothisa granitata* Gn.

Dr. Butler also informs me there may be types of the Canada species of the D'Urban collection in the Albert Memorial Museum at Exeter, where Mr. D'Urban was curator.

The following species of Walker I was not able to find in the Museum, nor do their names appear in the very complete manuscript catalogue of the collection :

Acidalia arcticaria, 1594; *A. suppressaria*, 1594; *A. inclusaria*, 1596 ; *A. albifera*, List Sup., 1625 ; *Aspilates abbreviata*, List 1673 ; *A. donotaria*, 1674 ; *Stegania quadrinotata*, 1759 ; *Tephrina pervelata*, 1760.

The following species of Walker, described from D'Urban collection, are probably lost. They were given to the Entomological Society of Ontario, and were in its possession in 1876. Somehow since, they have disappeared and are almost surely destroyed by *Dermestes*. These were described in the "Canadian Naturalist," vols. v and vi, and about the same time in the British Museum List. The references are to the list :

Cleora tinctaria, 486 ; *Boarmia convergaria*, 488 ; *B. ejectaria*, 489 ; *Macaria spilosaria*, 1641.

As said above, *B. convergaria* and *B. ejectaria* were declared by Mr. Grote to be synonyms, though he did not state of what species. As he made reference in this remark to six species, *Cleora tinctaria* and *M. spilosaria* may have been included.

Through an accidental overlooking of the types which may not exist, in the case of those of Guenée, I did not see the following :

Boarmia clivinaria Gn. Phal. i, 245 ; *Tephrina sabularia* Gn. ii, 205 : *Phibalapteryx floridata* Wlk. 1719; *Pseudosiona taylorata* Butler.

The following were described from colored pictures of Abbott, and may yet be identified :

Boarmia porcellaria Gn. Phal. i, 252 ; *Ceratonyx satanaria* Gn. i, 194.

The following I have not been able to positively identify, and cannot locate the types, if indeed they exist :

Phalæna bicolorata Fabr. Sup. 149–150 ; *Oporabia punctipes* Curtis, Appen. Ross' 2nd voy. p. 73 ; *Phasiane cruciata* Grt. Ann. Mag. N. H., 1883, p. 55 ; *Hydriomena transversata* Kellicott, Buff. Bull., vol. v, 45, 1886 ; *Pryocycla johnsonaria* Fitch, N. Y. Reports, xiii, 530.

Of these *O. punctipes* is almost certainly *Glaricopteryx polata ;* of *P. cruciata* I have lately seen the type and is one with *P. curvata* Grt. *H. transversata* is probably *H. truncata.* The type is lost. *P. johnsonaria* is almost certainly *Endropia bilinearia* Pack. and antedates it.

The following are shown in colored figures, but I feel uncertain about them :

Phalæna virginiaria Cram., vol. iii, p. 275, f. G ; *Arrhostia lumenaria* Hüb., Zutr. f. 757–758 ; *Hypargytis pustularia* Hüb., f. 103–104 ; *Dysstroma morosata* Hüb., 879–880 ; *Petrophora divisata* Hüb., Ex. Schm., Lep. v, Pet. B, Flavæ a ; *Eulepidotis alabastaria* Hüb., f. 311–312 ; *Larentia profugaria* H.-Sch. Auscu. Schm., f. 410–411.

P. virginiaria looks like *Bronchelia hortaria ; A. lumenaria* is very probably *Ephyra pendulinaria* Gn. ; *H. pustularia* is likely *Eumacaria brunneaiia* Pack. *D. morosata* may not be from the United States, as the locality is given as "Nord Amerika." *E. alabastaria* may be *Acidalia enucleata* Guen.

Mr. Warren has quite a number of new species from North America in the British Museum collection. They have type labels and manuscript names upon them, but have not yet been described. I have made no mention of them in these notes, as they have as yet no scientific standing. The most of them are synonyms of already described species, and with one or two exceptions none have, I think, anything more than varietal standing.

THE youth of Germany, Jaeger says, are extremely fond of Field-crickets, so much so, that there is scarcely a boy to be seen who has not several small boxes made expressly for keeping these insects in. So much delighted are they, too, with their music, that they carry these boxes of crickets into their bed-rooms at night, and are soothed to sleep with their chirping lullaby.—*Life of Amer. Ins.*, p. 114.

ABERRATION, VARIETY, RACE and FORM.

By Dr. RODRIGUES OTTOLENGUI.

(Continued from page 80, vol. vi, ENT. NEWS.)

Professor Packard argues against increasing the burden of nomenclature; but there is good reason why names should be given, if they could only be attributed intelligently. Let us suppose that a man breeds an insect and produces from the larvæ two distinct forms—one typical and the other sufficiently numerous in proportion to the whole brood that it is assured to be a variety rather than an aberration. According to Prof. Smith and Dr. Skinner, it would be best not to name this new variety, because it is known positively, despite its extreme difference in appearance, to what species it belongs. He therefore merely reports his work without assigning a name. Fifty years after him a student discovers a form, new to him, and not in the collections of his acquaintances. He cannot be held responsible for not knowing what the first man wrote, for he might be unable to obtain the work in which the record was made. He would, therefore, be tempted to consider it a new species. If, however, the first man named his variety the name would always appear in our check lists, and the student would instantly know that his supposed new form might be but a variety, and with the name in the check list to suggest such a search he would look for the record and find it. I think that names should be given to all distinct and permanently occurring forms for this reason. In the matter of varieties, if there is only the typical and one extreme form, the latter being more abundant than any of the intergrades, then I would name the extremes, because they, the typical and the extreme, could always be dissociated from the intergrades, and thus represent something distinctive. Where there are several distinct forms, which can be dissociated from the intergrades, then each distinct form should receive a varietal name regardless of the existence of intergrades.

The local race should also receive a name, for it is very close to a new species in the order of evolution.

Dimorphic and sexual forms should receive names to indicate to the student that they belong to a known species.

Aberrations should rarely receive a name until found in sufficient numbers to indicate that the prophecy of a forthcoming variety might be fulfilled. I think examples of opposite sexes, though only one of each were found, would suffice for this.

APHODIUS RUGIFRONS.

By H. C. FALL.

Among the species of *Aphodius* occurring in So. California, *A. rugifrons* is, in several respects, peculiar. Unlike every other species of the genus with which I am acquainted, the approach of Winter rather than of Spring is the signal for its appearance. Like *Pleocoma*, it should be sought immediately after the first considerable rainfall in November or December.

For several years I have at this season taken examples of this species, but as it is called for by every eastern collector with whom I have exchanged, the supply has never equaled the demand. The past season I determined to make special effort to renew my stock, and began to look for it as early as the latter part of October. As I anticipated, however, not an individual appeared until the first rain of consequence, which occurred December 5–8. A search through the garden on the 9th revealed dozens of specimens; almost every small object lying on the surface sheltered one or more, while the numerous little openings in the damp soil showed the manner of their advent. In coloration the elytra are normally yellow with black markings, but about one example in ten is entirely piceous. The size also varies, unusually .10 to .15 inch, the smallest specimens being in this respect inferior to every other species in our fauna.

In addition to the above it may be remarked that never in my experience have the beetles been seen on the wing, nor have they ever been found in situations usual to the species of the genus.

The limited geographical range, time of appearance, small size, retiring habits and brief stay, are factors which have combined to make *rugifrons* up to this time a rarity in collections.

Besides *rugifrons*, I have taken in So. California *granarius*, *lividus*, *alternatus*, *rubidus*, *militaris*, *pardalis* and *luxatus*. With the exception of *granarius* and *rubidus*, none are at all common, while *lividus* and *pardalis*, so far as I know, have not been recorded from this section.

A VERY pretty species of Cetoniidæ, the *Agestrata luconica*, is of a fine brilliant metallic-green, and found in the Philippine Islands. These the ladies of Manilla keep as pets in small bamboo cages, and carry them wheresoever they may go.—*Baird's Cyclop. Nat. Sci.*, London, 1858.

A CURIOUS HAMMOCK AND ITS MAKER.

Coriscium cuculipennellum Hübner.

By M. V. SLINGERLAND, Ithaca, N. Y.

In 1890 I noticed that several of the leaves on a young ash tree near my office window had been rolled into peculiar cones by some insect. The same year, while reading that quaint and charming little volume on "Insect Transformations," written by Rennie three-score years before, I found, on page 324, an interesting account (from Bonnet) of this or a similar ingenious cone-maker. This account led me to study the insect more closely, with the results given below.

I succeeded in rearing some of the adult insects in July, 1891. In the figure A is shown one of the grayish fuscous moths, about three times natural size; the markings on the wings are of a dark-brown color. A specimen was sent to Dr. Fernald, who finally decided (in January, 1893) that it was a new species; and he gave it the manuscript name of *Coriscium slingerlandella.* Anyone whose name has thus been applied to some insect can understand the peculiar interest with which I then looked upon the little creature. But Dr. Fernald had sent one of my moths to Lord Walsingham in February, 1892. Nearly a year later, and about a month after Dr. Fernald had named the moth, word came from Lord Walsingham that the insect was identical with one of Hübner's species, *cuculipennellum.* Dr. Fernald has called attention to the fact that the insect had never been observed in this country before ("Canadian Entomologist," xxv, 196). It was with a slight twinge of regret that I relabeled my specimens with the equally long name, and proceeded to search the literature for some account of its habits which might supplement my observations. I found that Ragonot had given a detailed account of its life-history in 1873 (Bull. de Soc. Ent. de France, pp. 166–168).

The following account of the life-history of this curious hammock-maker is drawn from my observations and from the accounts of Rennie and Ragonot: The pretty little moths emerge in the latter part of Summer or early Fall and doubtless hibernate. They come forth in the Spring and "deposit a single egg upon the upper surface of the leaf by the side of the mid-rib near the tip. A week or ten days later the larva leaves the egg and

introduces itself under the epidermis. Directing itself towards the petiole, it mines a long and straight gallery the length of the nerve. The cast skin which it detaches is extremely fine, shining and silvery, resembling the trace of a slug. The pale redish-brown excrement is scattered in the mine. Arriving at the petiole, the larva ascends near the edge and suddenly enlarges its mine in the form of a plate, and the edge of the leaf is curved up and rolled. Soon it is no longer contented with ruminating in the leaf, and attacks it directly, devouring a considerable portion of its habitation at the edge of the leaf. This lodging soon becomes too narrow for it, and it goes upon another leaf." (Ragonot). Here it begins at the tip and rolls the leaf obliquely into a cone. Sometimes the whole leaf is involved, as shown in the figure C; but usually only a portion of it, as in B. I have never observed the mining habits of the insect, but the curious cones are conspicuous objects among the normal foliage in June (in August in France). The larva continues to feed upon the edges of the leaf that are rolled into the interior of its conical home. About June 15 the larva reaches maturity, and is then from 8–10 mm. long, and of a light yellowish flesh color, greenish dorsally, the head a little darker than the body, and the mouth-parts brownish. It has four pairs of pro-legs borne by the third, fourth, fifth and tenth abdominal segments. The segments are considerably wrinkled, and the whole body is sparsely clothed with quite long whitish hairs. In its preparation to transform one must admire the larva's foresight and intelligence. It first eats almost through the leaf over a small round area, taking care to leave only the outer epidermis of the leaf, and thus forms

FIG. A.

FIG. B.

FIG. C.

a little window, scarcely larger than a pin's head. This epidermal window-pane serves to keep out all foes, and, as we shall see later, facilitates the emergence of the moth. Within its capacious one-windowed chamber it now proceeds to build its hammock, within which it changes to a pupa. The walls of the cone-like home have been cut away in C to show this pupal hammock. No one has seen the larva swing this hammock. But it is probably accomplished by first spinning a single-cable bridge of several silken threads from a point near the window to another point, sufficiently distant, on the opposite wall of the chamber. When satisfied that this silken cable is well anchored at each end, the larva doubtless stretches itself along the cable near the centre, with its head toward the window, and then proceeds to spin about itself a silken hammock—its cocoon. The cocoon is white in color, and has several ribs running its whole length.

The pupa rests in its silken hammock for nearly a month; then, with the aid of a beak-shaped projection on its head, it tears open the end of the cocoon, and the window is soon reached. One cannot but marvel at the foresight of the little larva in making this window, then fastening one hammock rope at its edge, and, finally, always getting into the hammock with its head toward the window. The beaked head of the pupa soon bursts through the window-pane and projects itself half-way out of the opening, and soon the pretty moth emerges and flits away to find some secure hiding place for the Winter. Some of the conical homes containing the pupal hammocks became dry and hard in my cages, and the pupæ were then unable to break through the window. When I broke some of the windows the moths emerged freely. Thus the little windows are made primarily for the purpose of facilitating the emergence of the adult insect. And, as Rennie says, "In order to render this little door easy to be found, the caterpillar, as if foreseeing that the blind pupa could not otherwise discover it, fixes one of the suspensory threads near its margin, guided by which the insect makes its exit with the utmost ease, for the head is uniformly swung up by the door thread."

Hübner found the cones on Privet; I have thus far seen them only on Ash. There is apparently but one brood of the insect in a year. Each year, as I look from my office window and see a few of these peculiar cones on the Ash tree, I am more and more impressed with the almost human intelligence displayed by this little hammock-maker.

Notes on Rhopalocera, with Descriptions of New Species.

By DR. HENRY SKINNER, Philadelphia, Pa.

We have in our lists a number of species which are stragglers from other faunæ, and among them some that are supposed to be improperly credited to our fauna. Mr. Edwards, in his catalogue published in 1884, gives a list of these. I have in my collection a specimen of *Papilio cresphontinus* Martyn, "Psyche," t. 3, fig. 8, t. 4, fig. 10 (1797). This was taken at Key West, Fla. The species is well figured in the "History of Cuba," by Sagra. I have also recently had sent to me for identification a species of *Kricogomia* described in the "Biologia Centrali-Americana," under the name of *unicolor*. It is described by Godman and Salvin as follows: Alis Sulphureo-flavis unicoloribus, subtus (praeter dimidio anticarum basali aurantio) pallidioribus et sericeis; linea longitudinali mediana albida. The specimen came from Comal County, Texas. I have also had direct from its collector a specimen of *Victorina steneles* taken in Blanco County, Texas, in November, 1894. *Lycæna xerces* Boisd., which was supposed to be extinct, has been recently taken in California. I have received a pair in exchange, but was not informed of the exact locality where they were caught.

Thecla sarita n. sp.—Upperside of all wings immaculate; fringes white. The hind wings each have a delicate tail about one-eighth inch in length, black, with a distinct white tip which is about one-fourth the entire length of the tail. The costa at the base is reddish brown. All wings are a dark purple color like some of our species of *Chrysophanus;* this color is brighter in the centre of the wings, the remainder being blackish. There is a projection of the wing at the anal angle which might also be called a tail. *Underside* of all wings bright green; the superiors have a narrow, bright, silver stripe extending from the costa to about third median nervule; this stripe runs parallel to and about one-eighth inch from the exterior margin. The lower half of the superior wing is light gray. There is a similar silver stripe on the inferiors, extending from the costa to the anal angle; this stripe is swollen in the middle and becomes very narrow, and on reaching the border of the wings bends at an acute angle and runs to the abdominal margin, thus forming a **V**. There is a distinct border to the inferior wing about an eighth of an inch wide, the inner line of the border being covered with bluish-silver and red scales, the border itself being composed of red scales and spots on a gray background. The projection at the anal angle has on it a round red spot, partly surrounded by white. The purple upperside and the bright green below with the silver bands make this a very distinct and beautiful species. It expands about one and one-eighth inches.

Described from one specimen, a ♀, received from Mr. F. Rauterberg, who has kindly permitted me to retain the type, which came from Comal County, Texas.

Melitæa neumoegeni n. sp. or var.—The specimens were received some time ago from Mr. Neumoegen and have been in my collection and his under the manuscript name above given. Male. Expands one and a half inches. *Upperside:* all wings bright brick-red, fringes white, alternating with black at the nerve endings. The wings are edged by a very narrow black line, and just inside of this and very close to it is another line of like character. The superiors have comparatively few markings, and these are faint. In the cell are two rings, and at the end of cell a black irregular line running from the costa; beyond this is another line of similar character, and there are a number of yellowish lunule-like markings at the tip. The inferiors are marked in a similar way, but there is considerable black at the base of the wing. *Underside:* the superiors practically as above, but all markings less distinct, except at the apices, where there are four or five distinct white spots, and below these, on the margin, two more. The inferiors, as in *M. gabbii*, with silvery-white spots, but the intervening spots are brick-red and with no black of any moment. The females are larger and present the usual differences found in the genus. It is difficult to accurately describe species of *Melitæa*, but this one differs from other species in its peculiar color and the paucity of markings, especially on the superiors below.

Described from three specimens in my own collection and from several in the late Mr. Neumoegen's. In the list it would probably stand next to *M. gabbii*. From Utah.

Eudamus protillus rauterbergi n. var. ♂.—Expands one and three-fourths inches. *Upperside:* dark smoky-brown in color; the superiors have nine hyaline spots, a faint one on middle of costa, and three extending in a line between this and the inner angle; one in middle of disc and a faint one in the interspace above; three are close together below the costa on the outer third of wing. Inferiors immaculate, with tails a half inch in length. Fringes alternating black and cinereous. *Underside:* superiors as above. Inferiors grayish with blackish longitudinal bands. This form is smaller and very much darker than *Protillus;* the fringes are far less marked, and the tails lack the admixture of light hairs; the maculation is about the same, but in all other ways there is much difference.

One specimen from Mr. F. Rauterberg, who received it from Comal County, Texas. I have also seen a specimen belonging to Dr. Wm. Barnes, taken in Arizona.

Amblyscirtes celia n. sp. ♂.—Expands one and one-eighth inches. *Upperside:* dark smoky-brown, almost black; fringes alternating black

and cinereous. Superiors have the usual three small spots on outer third of wing extending in a row from costa; there is a row of small yellowish white spots running across the centre of the wing in a line with the apex and middle of the interior margin; they vary in number in different specimens from none to four or five. Inferiors immaculate. *Underside:* superiors practically as above. Inferiors very finely mottled with light gray scales and showing in centre of the wings a number of small, indistinct whitish spots. The sexes are alike, except in the usual difference in size and the female having less of the central spots on superiors above. This species is dark as in *vialis*, *nysa*, *samoset* and *textor*, and in markings nearest to *ænus*, but is entirely different in color.

Described from specimens from Blanco, Comal and Nueces Counties, Texas.

———o———

VESPEROCTENUS FLOHRI Bates.

By GEO. H. HORN, M.D.

The insect indicated by this name will probably remain unseen to the vast majority of the readers of NEWS, and would have remained unmentioned here but for an article in a recent number of "Ent. Mo. Mag."

Vesperoctenus, at first glance, resembles a longicorn of the Leptura series apart from its flabellate antennæ, and was described by Mr. Bates as allied to that series, especially to *Vesperus*, from which it partly derives its name.

My knowledge of the insect came through a pair of males collected in the Peninsula of California, and were referred to me for study with the other Coleoptera collected there by the California Academy of Sciences. I would certainly have described the species as entirely new had not a timely visit from Mr. Flohr prevented.

In my paper on the Coleoptera of Baja California I could not agree with Mr. Bates, but placed the insect in the Rhipiceridæ, giving my reasons and citing Callirhipis as a convenient point of comparison.

In the article in "Ent. Mo. Mag." Mr. Gahan defends the opinion of Mr. Bates, and, of course, criticizes mine.

At present I do not propose to continue any argument, having said all that I deem necessary on my own part, and will leave to others the adoption of either view. My comparison with Callirhipis was, as stated, a mere matter of convenience from its flabel-

late antennæ, but my argument is intended to apply to the entire family as characterized in the books, the genera composing it being but few in number and differing widely.

My principal object in writing these lines is to object to a method of argument on Mr. Gahan's part, and it is not the first time that the method has been used by my English friends in argument against myself and Dr. LeConte. It is the assumption that we have no collections for reference beyond our own species. "In fact, I believe that Dr. Horn himself, were he really acquainted with *Vesperus* * * *" such is the insinuation, and it is untrue.

Again, I certainly did not intend "to impute carelessness or worse" to Mr. Bates, but I must be allowed the privilege to differ in opinion when I think there is reason.

No one can have higher regard for Mr. Bates than I, but no matter how learned a man may be it is possible to be in error at times and there is not a master in Entomology in whose writings there are not errors of judgment or through carelessness, or even both.

Had I been compelled to admit that I had not seen *Vesperus* the criticism of Mr. Gahan is equally a criticism of the published descriptions and figures of that insect.

AT Cumana (a city of Venezuala), the use of the Cucujus (*Elater noctilucus*) is forbidden, as the young Spanish ladies used to carry on a correspondence at night with their lovers by means of the light derived from them.—*Baird's Cyclop. Nat. Sci.*, London, 1858.

THE *Mantis religiosa* of America is said to make a most interesting pet when tamed, which can be done in a very short time and with but very little pains. Professor Glover, of the Maryland Agricultural College, tells me he once knew a lady in Washington who kept a *Mantis* on her window, which soon grew so tame as to take readily a fly or other small insect out of her hand.—*Cowan's Curious Facts.*

CHERNETID ATTACHED TO A FLY.—In Europe a number of Chernetids have been found attached to various insects. In this country, I believe, but one species has been recorded,—*Chelifer alius* on *Alaus oculatus* by Leidy. This appears to be the same as *Ch. oblongus* Say. I have recently received, through Mr. C. F. Baker, a specimen of *Chelanops pallipes* Bks., collected by Mr. J. C. Cowan at Hotchkiss, Colo., which was attached to a fly—a species of Dexidæ. *Ch. pallipes* was previously known from California.—NATHAN BANKS.

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., APRIL, 1895.

A LETTER TO THE "NEWS."

I am, I suppose, a tryo in entomology, yet I am earnestly and constantly seeking help and advice from books and periodicals on entomology. I spend twelve weeks each year teaching some hundred and fifty pupils about insects, their structure and habits. This is done not from books, but from insects themselves. I collect each Summer about twenty-four species of insects, in quantities of from 200 to a 1000 of each species. You can easily understand that I am likely to get many insects of other species. I know at sight about 150 species of beetles and quite a number, say fifty to a hundred species of Hymenoptera and Diptera. I have a collection of about 1000 species of insects. Yet, notwithstanding all this, I find the reading of the NEWS uninteresting. It tells me about so many species of insects of which I have no knowledge, nor the slightest conception what they are, nor means of finding out; while it tells me so little of those with which I do have a speaking acquaintance, or how to increase my knowledge of insects in general.

I am not even suggesting that the NEWS should change its plan of work to benefit me, or those like me. I know it is vastly more creditable, even if less profitable, to publish a paper the back numbers of which, filed away unread in entomological libraries, will be overhauled and quoted as authority twenty or fifty years from now. But that does not help me, nor those like me. I want help, suggestions, inspiration NOW. I have as yet found no periodical of that kind. The entomological journals for amateurs that I have already seen so far, are enough to make a man weep. But I know that there is a field for an entomological journal less technical than the NEWS, but still scientific and respectable.

It seems to me that entomologists are of two kinds: First, amateurs, who have learned what little they do know by the hardest means, and who are yet timid about asserting what they do know; Second, fullfledged entomologists, born fullgrown with a net in their hands. I do not think the latter class have a contempt for the former, but through a lack of knowledge of the experiences of the first they act as they would act if they did have a contempt for the first class.

You will certainly understand that in my remarks I do not intend to make any strictures upon the NEWS; but I am merely trying to state facts, as nearly as I can see them, that renders it undesirable to subscribe for the NEWS.—N. A. H.

WE have published this letter, as it is one of a kind that we receive not infrequently. The NEWS, as one of our former subscribers termed it, "shoots over the heads of some people." Now, the question is, how can this be remedied? The author of this letter claims to be a teacher of entomology, not from books, but from the insects themselves. He is the very man to give us an occasional popular article. The editors can't afford to write popular articles to make up each issue of the NEWS, as they have not the time so to do, and they are entirely dependent on subscribers for such articles. We try to have something in each number of interest to every one, and if we fail we can't help it. Some time ago we sent out circulars to all subscribers asking for popular articles, but they came not. If any subscriber fails to find one dollar's worth in the three hundred and twenty or more pages of NEWS we give for that amount, he had better invest his money in some other channel and become a millionaire. It will be found that the articles in the NEWS are written pretty much by the same people each year, and, while we are more than pleased with them, we would also like to hear from the people who are always talking about a more popular journal. We think many subscribers must be under the impression that the NEWS is a money-making scheme, and that those conducting it are making a fortune. The editors and all those connected with it subscribe their dollar, and they think they get an ample return; moreover, the American Entomological Society aids the NEWS financially, and every subscriber is indebted to said society, as it pays part of each subscription. Now, ye lovers of popular articles turn in and do your share and stop growling.

THE striped turnip-beetle, *Haltica nemorum*, commonly called the *Turnip-fly*, *Turnip-flea*, *Earth-flea-beetle*, *Black-jack*, etc., is a well-known species from the ravages the perfect insect commits upon the turnip. In Devonshire, England, in the year 1786, the loss caused by these insects alone was valued at £100,000 sterling. And in the Spring of 1837 the vines in the neighborhood of Montpellier were attacked to so great an extent by another species, *Haltica oleracea*, in the perfect state, that fears were entertained for the plants, and religious processions were instituted for the purpose of exorcising the insects.—*Curtis Farm Insects*, p. 22.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

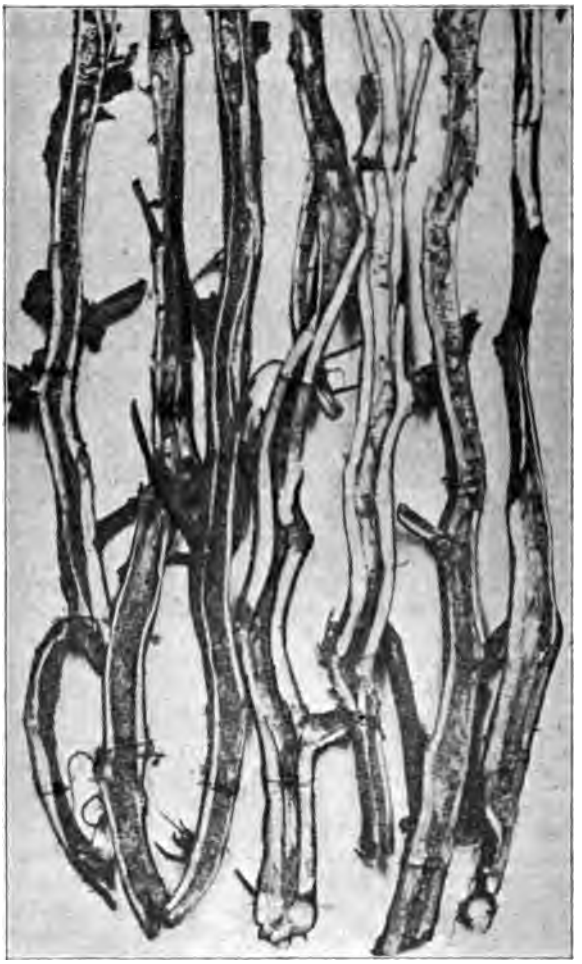
Illinois Entomology.—The 18th Report of the State Entomologist on noxious and beneficial insects of the State of Illinois for the years 1891 and 1892 is at hand. This is the 7th Report by Forbes, and it is certainly no worse than any that have preceded it. Practically, the Report is taken up by a treatise on insects that are injurious to corn; and this subject is handled more fully and more practically than ever before. A decidedly marked feature in the Report is the frequent recommendation of farm practice to prevent injury by the insects, and this is fully in line with the conclusions that I have been forced to more and more during the past years. Insecticides unquestionably have a very great range of usefulness, and for some purposes it will be impossible to do without them; but, on the other hand, I think there is as little doubt that in a great variety of cases we can reach the desired end, not so much by poisoning the insects, but by simply preventing their propagation by reasonable methods of farm culture. It is rather interesting, and it marks a somewhat new phase in handling the subject, that as against the corn aphis the destruction of the nests of certain ants is recommended. Of course, there is nothing very new at the present time in the relation of ants to plant lice; but I believe that this is the first time the practical possibilities involved in this relation have been taken advantage of for the benefit of the farmer. A somewhat interesting feature of the Report is the fact that the sensory pittings of antennæ and legs of the plant lice are figured. I believe I was the first of recent date to draw attention to the usefulness of these pittings, and the pictures published by me in Bulletin No. 75 of the New Jersey Agricultural College Experiment Station were the first ever published in any economic work where plant lice were treated.

A Benighted Country: That is what Mr. Edwin C. Reed calls Chile, and the following experience, which he details, goes far to support him. He writes: "In 1891–92 I was commissioned to stop an invasion of locusts that passed the Andes and laid some forty tons of eggs in Southern Chile. There was great alarm and a vote of $200,000. I found that the climate would kill them off, except in a few snug corners, where I did what was needful. The locusts were exterminated, and less than $5000 spent; but I got no thanks." Now, with all due regard to Mr. Reed, he should have taken some lessons in the United States in order to have managed this matter properly, to the advantage of economic entomology, and to make a great man of himself. After he discovered that the climate would kill off all the locusts, except in a few snug corners, he should have kept this

knowledge carefully to himself; he should have used all sorts of materials for experimental purposes in those places where the climate would have killed them off anyway, and he should have spent every cent of the money, carefully avoiding those snug corners. Then, next year he should have pointed with pride to the fact that wherever he had been and had tried his experiments that there no locusts appeared, and that only where he had not made applications the insects again appeared the following year. The facts would have been incontrovertible and Mr. Reed would have made a reputation that would have lasted the balance of his life, and would have had, besides, the pleasure of expending a snug little fortune. Mr. Reed is undoubtedly a good entomologist in more ways than one, but in our own country I am afraid that he would be considered as sadly behind the times.

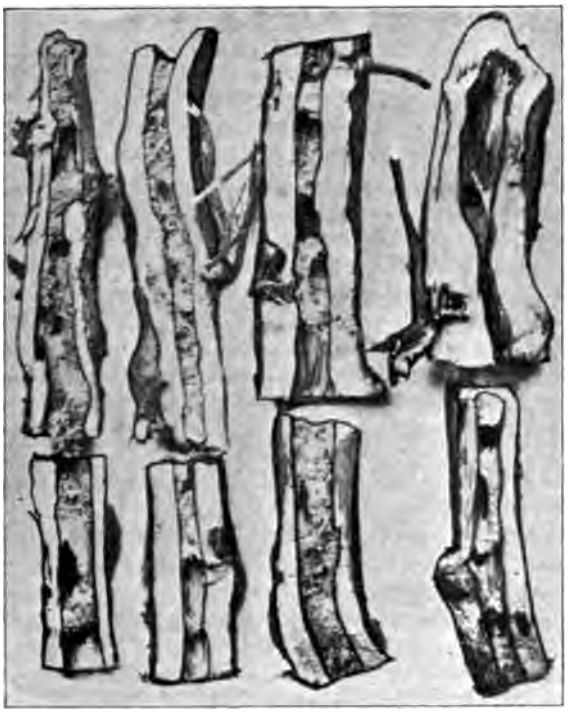
Chinch-bugs Again.—Bulletin No. 37 of the Minnesota Experiment Station furnishes another chapter in the history of experiments against this insect. Dr. Lugger makes substantially the same recommendations for fighting the insects that are made by Prof. Forbes, and he also has had some experience with the "white muscardine." In giving the experience on the Experiment Station Farm, Dr. Lugger shows that the disease appeared there and spread with exceedingly great rapidity during a spell of suitable—that is, wet weather, and that the recurrence of dry, warm weather checked the disease and prevented its further spread. This is, of course, in accordance with the observations made elsewhere. He finds further, however, that after distributing a great lot of insects covered with the fungus to many different points in Minnesota that there were outbreaks of the disease, in some cases sufficient to check further injury. It is admitted that these outbreaks were so extensive that it seemed almost unreasonable to ascribe them to the infestation introduced by the dead bugs; but, on the other hand, is seems that only where these insects were introduced was there any appearance of the disease. All this evidence is interesting, and all runs towards a single direction. It will prove without question a good thing to distribute the disease and to introduce it into all parts of the country where the chinch-bug occurs in injurious numbers; but, having done this, we have done nearly all that it is possible to do. Nature must do the rest—that is to say, it depends then upon the character of the season and upon the meteorological conditions as to whether or not there will be a development of the disease sufficient to do practical good. Again we note a tendency to recommend farm practice and methods of cultivation as remedial—or rather preventive measures—and I feel very certain that the more the insects are studied in the field, and the more we know of their feeding and hibernating habits, the more these methods will come into use for preventing injury from insects. I am convinced that in the course of another decade measures against insects will be quite different in their character from those practiced at the present time.

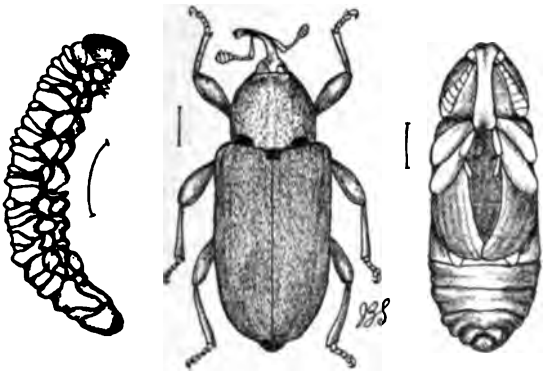
The Potato Stalk Borer.—This species, *Trichobaris trinotata* Say, has been unusually abundant in some parts of New Jersey during the season of 1894. Some parts of Pennsylvania also have been troubled, and among



them the vicinity of Germantown—the locality from which the very first reports of injury from this insect were ever received as far back as the days of Harris and Fitch. The insect has been much more troublesome in the Western States than it has been in the East heretofore, and, curi-

ously enough, none of the collections accessible to me three or four years ago had a single New Jersey specimen of this species, so that I could not





list it among those found in New Jersey. The figures herewith given show a series of vines eaten out by the larva—a series of vines cut at the base

to show the location of the pupa-cell and drawings of the larva, pupa, and imago. Practically, the insect can be dealt with rather easily. It remains in the vines throughout the Winter, as a rule, or at least remains in them until they are dead and dried. Burning the vines as soon as the potatoes are harvested results in destroying all the beetles. Where vines become infested moderately only—that is, not more than three or four larvæ to a vine—the liberal application of readily soluble fertilizers will stimulate the plants, so that it will make and mature a crop in spite of the injury done by the insects.

Legislation Against Injurious Insects.—Bulletin No. 33 of the Division of Entomology, U. S. Department of Agriculture, treats of this subject at some length, giving the full text of all the laws heretofore passed on the subject, and in addition some of the decisions of the courts upon the laws. It appears from this Bulletin that eleven States have passed laws more or less completely covering the subject, British Columbia being included in this enumeration. In Missouri, Kansas, Minnesota, and Nebraska grasshoppers alone form the subject of legislation. In California legislation is most thorough and covers the entire subject. Oregon, Washington and Idaho, as well as British Columbia, have tolerably complete provisions. The New Jersey Act is intended to be comprehensive; but at present writing has not yet succeeded in passing the gauntlet of House, Senate, and Governor and becoming actually effective.

Foul Brood has become the subject of legislative action in New York and in Utah, and, if the present agitation continues, something will probably be done in New Jersey. Most of the opposition in New Jersey comes from the farmers themselves and practically from one section of the country, where the insect question has not forced itself upon them very strongly from the nature of their agriculture. Peculiarly enough, however, that very section which opposes general legislation suffers from "Foul Brood," and is very anxious to obtain legislative action on this particular subject. It affords a very pretty illustration of human nature, and it shows that it always depends upon whose ox is gored as to whether or not it becomes necessary to take active measures.

It will become interesting if, in the future, we can obtain reports from the various States in which laws exist as to their workings. I have followed with some interest developments in New York State on the Black Knot question, and was a great deal amused on one occasion in talking with a farmer to have him declare that if it was anywhere within his power the law would be enforced and he would see to it that no black knots existed in his vicinity. A little later, strolling through his place, I ran across a clump of old cherry trees on a hillside that were simply covered with black knot, and I was further interested later on when I asked him whether he knew of the existence of any such fungus on his place that he asserted in the most positive way that nothing of that kind could be found anywhere within his domains.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

THE CHILIAN MARGARODES.—I expect we shall have to call this insect (see p. 86) *Margarodes vitas* after all, notwithstanding Philippi's strange mistake regarding its nature; but if we agree to reject the name *vitis*, we still cannot accept that now proposed by Mr. E. C. Reed, since Giard described the species last year as *M. vitium*.—T. D. A. COCKERELL.

WASPS IN ENGLAND.—On pages 284 and 334 of the last volume of "Insect Life," reference was made to the extraordinary abundance of wasps in Great Britain during the Summer of 1893, the result probably of the long-continued dry weather of the Spring of that year.

Mr. Henry Cullum, of Utah, has recently sent a clipping from the *Western Daily Press*, of Bristol, England, dated June 27, 1894, in which the statement is made that the Chew Magna Horticultural Society endeavored to reduce the plague by offering the present season a reward of 6*d*. per dozen for queen wasps delivered dead to the Society. Over two thousand had been sent in up to the date of the publication, and the editor of the *Press* advocated the adoption of this plan by other horticultural and agricultural societies throughout the kingdom.

DIASPIS LANATUS—AMYGDALI.—Mr. Maskell writes that he has examined *Diaspis amygdali* Tryon, 1889, on peach from Queensland, and finds it to be the same species as *D. lanatus* Morg. and Ckll., 1891. He says: "The only differences which I can detect are the *very*, *very* slightly less incised terminal lobes of *amygdali*, and a very small increase in the number of spinnerets in *some* specimens." I have never seen authentic *amygdali*; but in the Rept. Dept. Agriculture for 1893, *amygdali* is stated to be distinct from *lanatus*, differing in size, color of ♀ scale, and method of work. Nevertheless, I am strongly inclined to agree with Mr. Maskell that the species called *amygdali* and *lanatus* are all one, the apparent differences being only varietal. The species which must be called *D. amygdali* is now known from the following countries: United States, West Indies, Australia, Ceylon and Japan. The positive evidence of its occurrence in Japan is derived from an examination of specimens collected by Mr. Takahashi, and sent to me by Mr. Howard. More detail will be given on this point hereafter.—T. D. A. COCKERELL.

ÆSCHNA PENTACANTHA IN NEW YORK.—Mr. R. H. Pettit has taken two males of *Æ. pentacantha* Ramb. at Baldwinsville, Onondaga County, N. Y., in June. The species was previously known, I believe, only from Texas, Louisiana and southern Illinois.—N. BANKS.

AN EARLY SUGGESTION OF A MODERN PLAN.—The appointment of Mr. Albert Koebele by the Hawaiian government for the purpose of collecting and bringing to Hawaii beneficial insects which will prey upon injurious species, referred to in a recent number of "Insect Life," was the direct outcome of the success of certain recent experiments in this direction. The idea of the employment of predatory and predacous species in this way is an old one, but just how old we hardly realized until we saw in the "Entomologist's Record" for August, 1894, a little review by F. J. Buckell, of Linnaeus' "Amœnitates Academicæ," which, though bearing the name of Linnaeus, was written by one of his pupils, Andrew John Bladh. In this "entomological antique," as Mr. Buckell calls it, the following suggestion is made: "If we understood how to apply insects properly, we might use them as we do cats against mice, and by attending to the design of Nature, prevent much damage."

THE timely suggestion in the February NEWS with reference to the erection of a monument to Thomas Say in Philadelphia is a most excellent one, and to some extent anticipates another which I had intended to make on closing the Say sketches. It would, it seems to me, be a very proper thing to do if the entomologists of America were to donate a trifle each and erect a neat iron fence about the resting-place of Say at New Harmony. The present owner of the premises, Mrs. Richard Owen and her sons, I am very sure, would be more than pleased to grant permission for its erection. A very small amount contributed by each entomologist would suffice to erect a substantial and appropriate iron fence, enclosing an area of 20 x 24 feet. I can, if desired, secure permission for erection, and get estimates of cost of same and erection, I would suggest that the editor and associate editor of the NEWS, the editors of "Psyche" and the "Canadian Entomologist" be considered a committee to receive (and solicit if necessary) funds for this purpose.

F. M. WEBSTER.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. THE AMERICAN NATURALIST. Philadelphia, February, 1895.—The philosophy of flower seasons and the phænological relations of the entomophilous flora and the anthophilous insect fauna, C. Robertson, figs. Two new species of *Lecanium* from Brazil, T. D. A. Cockerell.—March, 1895. The classification of the Lepidoptera, V. L. Kellogg.

2. REVUE BIOLOGIQUE DU NORD DE LA FRANCE. Lille, December, 1894.—Remarks on the organization and comparative anatomy of the latter segments of the body of the Lepidoptera, Coleoptera and Hemiptera (cont.), J. Peytoureau, figs., pls.

3. ARCHIVES DE ZOOLOGIE EXPERIMENTALE ET GENERALE (3), ii, 1894, 4. Paris.—The venomous gland of *Scolopendra*, O. Duboscq, figs. On a marine Dipter of the genus *Clunio* Haliday, R. Chevrel.

4. MEMOIRES DE LA SOCIETE ZOOLOGIQUE DE FRANCE, vii. Paris, 1894 (extracts).—Studies on ants, fourth note: *Pelodera* in the pharyngeal glands of *Formica rufa* L., C. Janet, figs; Seventh note: On the anatomy of the petiole of *Myrmica rubra* L., id., figs.

5. MEMOIRES DE LA SOCIETE ACADEMIQUE DE L'OISE, xv. Beauvais, 1894 (extract).—Studies on ants, fifth note: On the morphology of the skeleton of the post-thoracic segments in the Myrmicidæ (*Myrmica rubra* L. female), C. Janet, figs.

6. CHRISTIANIA VIDENSKABS-SELSKABS FORHANDLINGER, 1893, No. 13 (received Feb. 19, 1895).—Catalogue of Norwegian Lepidoptera, W. M. Schoyen.

7. BULLETIN DE L'ACADEMIE IMPERIALE DES SCIENCES DE ST. PETERSBOURG (v), ii, 1, January, 1895.—Studies on the lymphatic system of insects and myriapods, A. O. Kowalevsky.

8. NOVITATES ZOOLOGICÆ, ii, 1, Tring (England), Feb. 1, 1895.—Descriptions of new species of Lampyridæ in the Museum at Tring, E. Olivier. Notes on Saturnidæ, W. Rothschild.

9. ALTERNATING GENERATIONS, A Biological Study of Oak Galls and Gall Flies. By Hermann Adler, M.D. Translated and edited by Charles R. Straton, Oxford. At the Clarendon Press, 1894, pp. xliii, 198, 3 pls.

10. TRANSMUTATION DER SCHMETTERLINGE infolge Temperaturänderungen Experimentelle Untersuchungen über die Phylogenese der Vanessen. Von E. Fisher, cand. med. Zurich. Berlin, R. Friedländer & Sohn, 1895, 36 pp.

11. BULLETIN 83. Cornell University Agricultural Experiment Station.—A plum scale in western New York, M. V. Slingerland, figs. Ithaca, N. Y., 1894.

12. THE ENTOMOLOGIST'S RECORD, London, Feb. 15, 1895.—Address by the vice-president to the city of London Entomological and Natural History Society [the study of entomology, entomologists], J. W. Tutt. Catalogue of the Lepidopterous super-family Noctuidæ found in Boreal America by J. B. Smith [a review], J. W. Tutt.—March 1st. Notes on *Aphomia sociella*, W. P. Blackburne-Maze, 1 pl. Generic names in the Noctuidæ (cont.), A. R. Grote. The life-history of a Lepidopterous insect; chap. v, the larva or caterpillar, J. W. Tutt. Discussion on the nature of certain colors (cont.), R. Freer, W. S. Riding. Apterous females and winter emergence, E. F. Studd.

13. THE TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1894, pt. v, Feb. 5, 1895.—President's address: The geographical distribution of butterflies, H. J. Elwes.

14. BULLETIN, No. 32. Texas Agricultural Experiment Station. Austin, Texas, September, 1894.—[On some insects injurious to plums], R. H. Price, figs.

15. ANNALES DES SCIENCES NATURELLES, ZOOLOGIE (7), xix, 1. Paris, 1895.—The glandular apparatus of the Hymenoptera (salivary glands, digestive tube, Malpighian tubes, venomous glands), L. Bordas, 4 pls. [That which is here published includes only the salivary glands].

16. PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, iii, 2, 3.—Notes on the discovery of a new Scolytid, with brief description of the species, A. D. Hopkins. [Jan. 7, 1895; author's extra.] Notes on the habits of certain Mycetophilids, with descriptions of *Epidapus scabiei*, sp. nov., A. D. Hopkins, figs. [Feb. 13, 1895; author's extra.]

17. THE KANSAS UNIVERSITY QUARTERLY, iii, 3. Lawrence, Kans., January, 1895.—*Cnephalia* and its allies, W. A. Snow. A new species of *Pelecocera*, id. Exotic Tabanidæ, S. W. Williston. American Platypezidæ, ii, W. A. Snow.

18. GLI INSETTI E GLI UCCELLI considerati per se stessi e per i loro rapporti con l'Agricoltura. Apelle Dei autore. Memoria presentata nell' Adunanza del Comizio Agrario del 29 Aprile, 1894. Siena, 1894.

19. PSYCHE. Cambridge, Mass., March, 1895 (received Feb. 28, 1895).—New North American Odonata, A. P. Morse. Description of some of the larval stages of *Amphion nessus*, C. G. Soule. *Rhopalomera xanthops* sp. nov., S. W. Williston.

20. ENTOMOLOGISCHE NACHRICHTEN, xxi, 1-4. Berlin, January, February, 1895.—On grass galls, E. H. Rübsaamen, figs. Synonymic catalogue of the European Sphecodinæ, Anthreninæ, Dr. V. Dalla-Torre and H. Friese. Supplementary note on *Sphinx* larvæ, Dr. L. Glaser.

21. COMPTES RENDUS, L'ACADEMIE DES SCIENCES. Paris, Feb. 18, 1895.—On *Vespa crabro* L., oviposition; preservation of heat in the nest, C. Janet, figs.

22. MEMORIE DELLA R. ACCADEMIA DELLE SCIENZE DELL' ISTITUTO DI BOLOGNA (v), iii, 1893.—Monographic study of the genus *Azteca* Forel, C. Emery, 2 pls.

23. KNOWLEDGE. London, March 1, 1895.—The intelligence of insects in relation to flowers, Rev. A. S. Wilson, figs.

24. BOLLETINO DEI MUSEI di Zoologia ed Anatomia comparata d. R. Universita di Torino, No. 184, Sept. 30, 1894.—Voyage of Dr. Alfredo Borelli to the Argentine Republic and Paraguay: Orthoptera, Dr. E. Giglio-Tos.—186, Oct. 25, 1894. Id.: Formicidæ, C. Emery.

25. MEMOIRES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, i. Brussels, 1892.—Synonymic catalogue of the Buprestidæ described from 1758 to 1890, C. Kerremans. [Received March 12, 1895].

26. PROCEEDINGS AND TRANSACTIONS OF THE CROYDON MICROSCOPICAL AND NATURAL HISTORY CLUB. Croydon, 1894.—The silk-worm disease; its cause and prevention, A. B. Farn.

27. BULLETIN FROM THE LABORATORIES OF NATURAL HISTORY of the State University of Iowa, iii, 1, 2. Iowa City, January, 1895.—Narrative and preliminary report of Bahama expedition, C. C. Nutting.

28. THIRTY-SECOND ANNUAL REPORT OF THE MASSACHUSETTS AGRICULTURAL COLLEGE for 1894. Boston, January, 1895.—A new greenhouse pest [*Orthezia insignis* Doug.], C. P. Lounsbury, 4 pls.—Report of Entomological division (received March 8, 1895).

29. SPECIAL BULLETIN, No. 2, OF THE WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION.—Forms of the so-called potato-scab caused by insects, A. D. Hopkins, figs.

30. BULLETIN, No. 37. University of Minnesota Agricultural Experiment Station. St. Anthony Park, Minn., December, 1894 (received March 12, 1895).—The Chinch-bug, O. Lugger, figs.

31. EIGHTEENTH REPORT of the State Entomologist on the Noxious and Beneficial Insects of the State of Illinois. Seventh report of S. A. Forbes. For the years 1891 and 1892. Springfield, Ill., 1894 (received March 8, 1895). Insects injurious to Indian corn; 165 pp., 15 pls.

32. THE JOURNAL OF THE CINCINNATI SOCIETY OF NATURAL HISTORY, xvii, 4, January, 1895 (received March 8, 1895).—Catalogue of the Odonata of Ohio, part i, D. S. Kellogg.

33. THE CANADIAN ENTOMOLOGIST. London, Ont., March, 1895 (received March 11).—Descriptions of some new species of Epipaschiinæ and Phycitidæ, G. D. Hulst. Canadian Coccidæ,—iii, T. D. A. Cockerell. Some new species of *Robinsonia*, W. Schaus. Preliminary studies in Siphonaptera,—ii, C. F. Baker. Notes on some reared Hymenoptera, largely parasitic and chiefly from Ohio, F. M. Webster. The Coleoptera of Canada,—vii, H. F. Wickham, figs. New Hampshire Tenthredinidæ, A. D. Macgillivray. In reply to Mr. Hulst, A. R. Grote.

34. THE ENTOMOLOGIST'S MONTHLY MAGAZINE. London, March, 1895.—Further notes on the habits of *Psyche villosella* Ochs., C. G. Barrett. Occurrence of *Tinea vinculella* H.-S., at Portland, with notes on its life-history, N. M. Richardson. Successful introduction of humble bees into New South Wales, A. S. Olliff. *Aleurodes proletella* L. and *A. brassicæ* Walk., a comparison, J. W. Douglas. Recent experiments on the means of protection possessed by *Abraxas grossulariata*, W. F. H. Blandford. Note on a mass of cocoons of *Aphomia sociella* L., C. G. Barrett. Method of sugaring meadows, moors, mountain sides, etc., H. G. Knaggs.

35. THE ENTOMOLOGIST. London, March, 1895.—On the causes of variation and aberration in the imago state of butterflies, with suggestions on the establishment of new species, Dr. M. Standfuss, transl. by F. A. Dixey, introductory note by F. Merrifield. Moth-adipocere, H. G. Knaggs. Jumping beans and jumping eggs, C. G. Bignell.

36. TRANSACTIONS OF THE CONNECTICUT ACADEMY, ix, pp. 400–429 July, 1894 (received March 8, 1895).—Canadian spiders, J. H. Emerton, 4 pls.

37. LE NATURALISTE CANADIEN. Chicoutimi, Quebec, February, 1895 (received March 8).—L'Abbe Provancher (cont.), Abbe V. A. Huard. Coloration in Lepidoptera, Abbé P. A. Begin.

38. DEUTSCHE ENTOMOLOGISCHE ZEITSCHRIFT, 1894, Erstes Lepidopterologisches Heft. Berlin, July 14, 1894.—High Andine Lepidoptera, Dr. O. Staudinger, 2 pls. Palaearctic genera of Lasiocampidæ, Striphnopterygidæ and Megalopygidæ, Dr. C. Aurivillius, 2 pls.—Zweites Lepidopterologisches Heft, Jan. 5, 1895. On the capture and habits of the chief butterflies of the Amazon Valley, O. Michael. [Both parts received March 11, 1895.]

39. THE NATURALISTS' JOURNAL. London, March, 1895.—Pupa hunting (cont.), H. G. Knaggs, figs. Insects that feed on shrubs, S. L. Mosley. Beetles in a timber yard, R. J. Thomson.

40. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxix, 2. Brussels, Feb. 28, 1895 (received March 14, 1895).—New contribution to the study of the Lathridinæ, M. J. Belon.

41. The appearance of the seventh part of "Monographie der mit Nysson und Bembex werwandten Grabwespen," * by Anton Handlirsh, completes one of the most important and useful works relating to the Hymenoptera published in recent years.

This last part relates entirely to the genus *Bembex*, which, as the author states, is the most difficult and the richest in species in the entire group, his paper containing descriptions of 118 species which he has personally

* Sitzungsb. d. k. Akad. d. Wissensch., Wien, Math.-naturw. Classe, cii, Bd, Abth., i, pp. 657 et. seq.

examined, more than half of which are brought to light for the first time, and 35 species unidentified. The biology of a number of the species is dwelt on at length, comparisons being made with the habits of many other fossorial wasps; and a chapter is devoted to the phylogeny and systematic remarks, and another to the geographical distribution. Coming to the systematic part of the work, we find the species divided into two grand divisions,—the Bembeces genuinæ, consisting of the greater number of the species, and the Bembeces aberrantes; and the species are further divided into 39 minor groups. The author finds that Cresson confused two species in describing *Belfragei*, and in separating the two has named both, thus erecting a new name for *Belfragei*, which it appears he was unable to identify from Cresson's description.

Another change is the substitution of the name *spinolæ* Lepelitier for *fasciata*, under which head American students had known our common species, because the author believes it impossible to identify the *fasciata* of Fabricius from the description, as it is applicable to several other species. The advisibility of this modification is to be doubted, inasmuch as the form which we regarded as *fasciata* has probably more right to the name than any of the allied ones; and as Fabricius' name cannot be dropped, unless proven a synonym, it is more advantageous by far to assign some form to it, fitting the description, than to increase the already too large list of unidentified species of the old authors, which will no doubt never be determined. The author is to be congratulated on the completion of such a valuable contribution to hymenopterology.—W. J. F.

42. We have just received from the authors a copy of an important contribution to the literature of West Indian Hymenoptera, the "Report upon the Parasitic Hymenoptera of the Island of St. Vincent," by C. V. Riley, William H. Ashmead and L. O. Howard, printed in the Linnean Society's Journal, vol. xxv. The work is based on the material collected for the West India Committee by Mr. Herbert H. Smith, whose energy as a collector has been well attested by his previous labors in Brazil. Prof. Riley contributes the introduction and a list of the previously described Parasitica of the island, which is followed by Part 1 of Mr. Ashmead's paper, this being succeeded by Mr. Howard's report on part of the Chalcididæ. Part 2 of Mr. Ashmead's report concludes the work, which includes no less than 254 pages, in which 6 new genera and 299 new species are described. Prof. Riley hopes soon to publish a supplementary paper containing the Microgasterinæ and the Eupelminæ.—W. J. F.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes that the paper in question contains descriptions of new North American forms.

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ARACHNIDA.

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LEPIDOPTERA.

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Doings of Societies.

MARCH 12, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 South Thirteenth Street. Members present: Messrs. Bland, Dr. Griffith, Dr. Castle, E. Wenzel, Trescher, Fox, Hoyer, Seeber, Boerner, Johnson, H. W. Wenzel, and Smitz. Honorary member: Prof. John B. Smith. Visitor: Levi W. Mengel, of Reading, Pa. Meeting called to order at 8.50 P.M., president Bland presiding. Prof. Smith exhibited a number of interesting photographic prints, the result of some of his recent experiments in that line, his object being to obtain fac-similes from originals for the purpose of photo-engraving, correct reproductions being impossible through the art

of sketching. Among these were a number of prints showing the burrows made by *Scolytus rugulosus* in apple wood, being so arranged as to show the different stages of the life of these insects. These were the best reproductions the members had ever seen, and the professor attributes his success partly to the use of aristo-platinotype paper and the double toning process. These beetles, he said, first burrow one central gallery and then make small lateral chambers at intervals, laying three or four eggs in each, feeding after every deposit, and repeating this work until a beetle has oviposited five or six times its bulk in eggs during a lifetime. Mr. H. W. Wenzel exhibited some interesting Coleoptera from Utah, also stating that *Anthonomus sycophantus* and *A. scutellatus* had been captured very commonly on willow in the Orange Mountains, N. J., last Summer.

It was unanimously resolved that a vote of thanks be extended to Dr. Skinner for the royal manner in which he entertained the social at its last meeting. No further business being presented, the meeting adjourned to the annex at 10.30.

THEO. H. SCHMITZ, *Secretary.*

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

A NEW VOLUCELLA FROM WASHINGTON.

By D. W. COQUILLETT, Washington, D. C.

Among an interesting lot of Diptera received from Prof. O. B. Johnson for naming, was a pair of specimens belonging to the Syrphid genus *Volucella;* a careful comparison with the existing descriptions indicates that the species is a new one, and it is therefore duly characterized below. Each of these specimens has the marginal cells of the wings open, and the species would therefore belong to the genus *Phalacromyia* Rondani, but in the recent paper by E. Giglion-Tos (Ditteri del Messico, Part I) this is merged into *Volucella*, since he found that the character of the opened or closed marginal cell varies in the different specimens belonging to the same species.

Volucella kincaidii n. sp. ♂.—Black, the scutellum dark fulvous, halteres brownish. Eyes black pilose, that on the lower part reddish; front, cheeks and occiput reddish pilose, that on the face black; face on upper two-thirds straight, the lower third much retreating and concave; upper two-thirds of face in the middle gray pollinose, the remaining surface subshining; proboscis much shorter than either front femur. Thorax subopaque, reddish pilose, its posterior half and a broad stripe on upper edge of pleura black pilose; scutellum convex, rounded behind, destitute of a transverse impression and of bristles, its pile mixed yellowish and black. Abdomen opague velvety, with the exception of the base of the third segment and the whole of the two following, which are shining excepting an indistinct subopaque fascia beyond the middle of the fourth; pile of abdomen reddish yellow; hind femora more slender than the others, hind tibiæ arcuate; pile of hind femora and on bases of the others reddish yellow, that toward the apices of the latter largely black; hind tibiæ quite densely ciliate on the inner and outer sides with rather short hairs, those on the inner side the longest, being slightly longer than the transverse diameter of the tibia. Wings hyaline, apex of subcostal cell brown, a brown fascia extends from base of submarginal cell to posterior end of cross-vein at apex of second basal cell; a brown cloud on the small cross-vein; marginal cell open; calypteres yellowish.

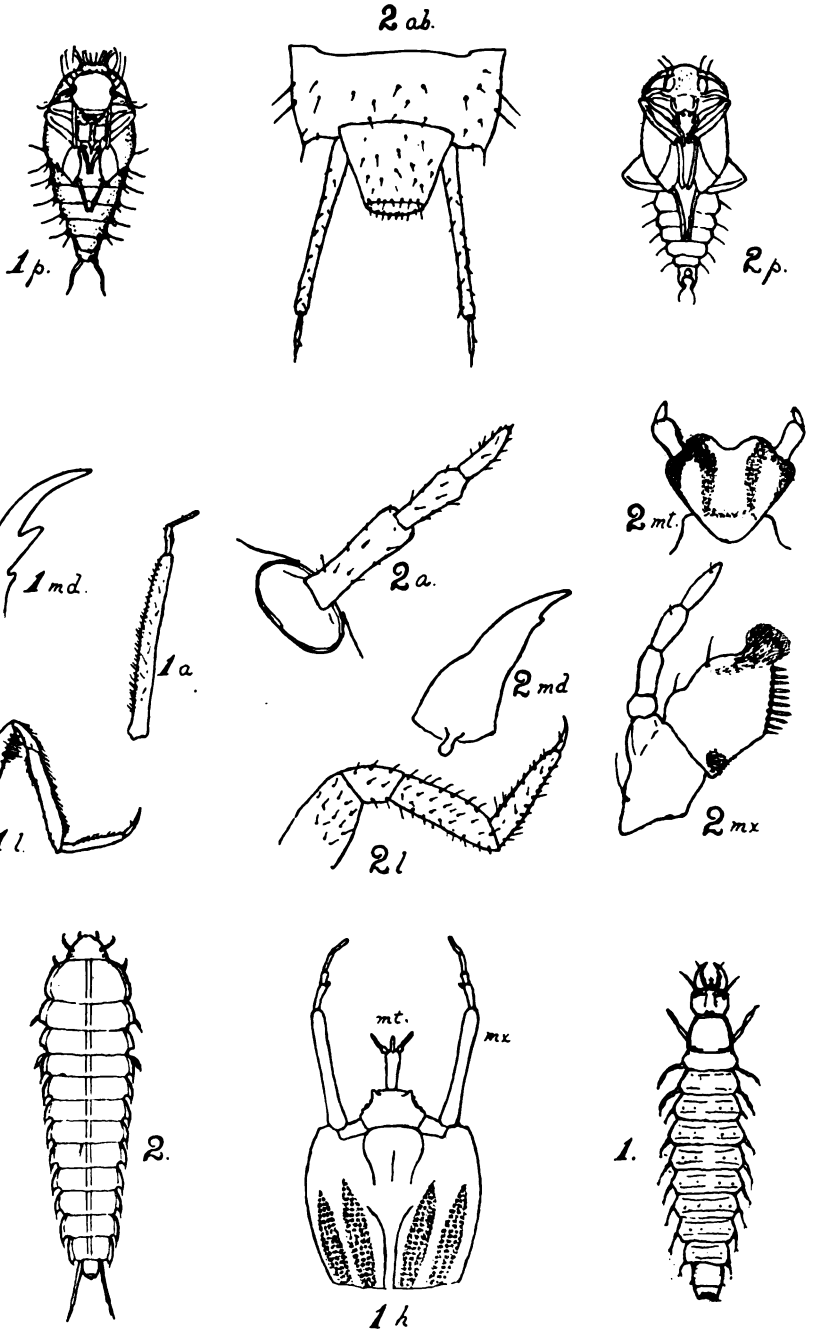
♀.—Same is the ♂ with these exceptions: Face not pollinose, excepting on the sides, its pile yellowish: front subshining, at its middle is a transverse impression extending from eye to eye and more densely punc, tured than the remaining surface; pile of thorax, pleura, scutellum-abdomen and legs yellow. Length 12-14 mm.

Olympia, Washington. A single male and female collected by Mr. Trevor Kincaid, after whom it gives me pleasure to name this interesting species.

OBITUARY.

HANS DANIEL JOHAN WALLENGREN, the well-known entomologist, died Oct. 24, 1894, at Farhult, Sweden, aged 72 years.

ENTOMOLOGICAL NEWS for March, was mailed March 1, 1895.



COLEOPTEROUS LARVÆ (Wickham).

See page 168.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. VI. MAY, 1895. No. 5.

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COLLECTING AT LAKE WORTH, FLA.

By ANNIE TRUMBULL SLOSSON.

I reached Palm Beach on the east side of Lake Worth on December 31st, a few days after the first great "freeze" of this strange, cold Winter. Of course even in South Florida, where the temperature is generally so uniform throughout the year, there is a season of rest for both plant and insect life. And the Winter months—the dry season—show a great lessening of the number of insects. But for several years I have collected in Florida through January and February, and have never seen as little insect life as in the Winter months of this year of 1895. Still in the two weeks of my stay at the Lake I found some rare and interesting things. There was very little in the way of Lepidoptera. In the spots where last March the air was full of fluttering wings and gay with bright tints of butterflies and day moths, there was now scarcely a sign of life or motion. The flowers around which they then flitted and hovered were dead, the vines, shrubs and trees dry and leafless. I saw one *Callidryas agarithe* only, where last season the place was all golden with their waving wings; I took one *Heliconia charitonia*, and a

pair of *Pieris ilaire*. I was also so very fortunate as to capture one more specimen of the rare little beauty, *Thecla acis*, of which I found a pair last year. The only butterfly which was at all common was a little blue *Lycæna*,—I think it is *L. ammon*—which was flying about the few and rare blossoms near the beach. Near the hotel a white bur marigold (*Bidens leucantha*) had escaped the frost, and was in bloom everywhere, looking much like our common daisy or white weed of the North. Probably because it was one of the very few plants in flower this proved exceedingly attractive to Hymenoptera and Diptera. The brilliant carpenter bee, *Xylocopa micans*, always common here, boomed and buzzed about these blossoms, a few bumble bees (*B. pennsylvanicus* and *B. americanorum*) came to them at times, and *Melissodes bimaculata*, one or two species of *Augochlora* and *Agapostemon* flitted about them. Here, too, I captured two specimens of a tropical insect, *Elis tricincta*, never before recorded as found in the United States. A handsome *Cœlioxys*, black and red was taken here and is probably either a new species or West Indian. Upon one or two lime trees there were a few blossoms left untouched by the frost and around these were always flying wasps and hornets. A *Vespa*—*V. cuneata*, I think—*Polybia cubensis*, and two or three species of *Polistes*, were common here. And *Zethus slossonæ* Fox was very abundant. I took some twenty specimens of this one morning, and among them found *Eumenes smithii*, which, from its coloration and superficial resemblance, I had mistaken for the *Zethus*. But one day moth, I think, was seen here, a pretty fellow I had never before found. It is, I suppose, the *Deiopcia aurea* Fitch, afterward described by Clemens as *Poecilopteta compta*, and called by Prof. Smith, in his check list, *Oeta aurea* Fitch. I am not sure of this synonymy, as I am away from my library. It is a showy insect, though small, with fore wings of shining orange, marked with bluish-black patches containing yellow spots; hind wings dark, semi-hyaline. I took several specimens of this moth. *Composia fidelissima* was not seen at all. There were no night moths, or almost none, two or three microlepidoptera and one small geometer, that was all, I think. Of Coleoptera I found some forty species in the two weeks of my stay. Of these over twenty were not included in Dr. Hamilton's list of Lake Worth Coleoptera ("Can. Ent." xxvi, 250) nor in my additional list ("Can. Ent." xxvii, 9).

Many of these beetles were found apparently hybernating under bark, boards or rubbish, and were quite torpid. The species most common here last season were not found at all, or in very small numbers. The little Anthicid, *Mecynotarsus elegans*, so very abundant on the hot white sand near the ocean last year was scarce and hard to find; I saw none at all until a few days before I came away, when I secured a few. The large whitish green weevil, *Pachnæus distans*, was taken hybernating under the fibrous sheaths of the leaves of cocoanut palms. *Artipus floridanus* was found in same situations. But my most interesting work in beetle hunting was done by dredging. Much of the land here is drained for cultivation by ditches in which the water (brackish) always stands at about the level of hightide in the sea. In these, with a very roughly improvised net made of a piece of muslin sewed to an awkwardly bent bit of iron wire whose twisted ends made the only handle I could contrive, I dredged with much success. I took in this way thirteen species, some common, some rare. Among them were *Rhantus calidus*, *Bidessus exiguus*, *Coptotomus obscurus*, *Berosus striatus* and *Canthydrus gibbulus*. Perhaps the most abundant was *Hydrophilus nimbatus*. There was one handsome *Thermonectes*, which Mr. Liebeck labels *ornaticollis?* On the ocean beach I found a few specimens of *Phaleria longula*, and *P. picipes* under timber or seaweed, but they were not common. In same situation I found one *Pæderus floridanus* and several specimens of *Aleochara* sp. Flying along the sand in the hot sunshine I took, one day, two specimens of *Pompilus juxta*, a pretty black and red sand-wasp, not hitherto recorded from the United States. I saw very few larvæ of any kind. Three or four caterpillars, evidently *Ecpantheria scribonia* were found torpid under boards. In the trunk of a cocoanut tree, in a sort of cocoon made by hollowing out a cell, and lining it with silk mixed with bits of wood as fine as sawdust, I found a whitish, grub like larva. I cut out the piece of wood containing the cocoon and took it home. I dared not examine the larva very closely for fear of disturbing it. Its general color was sordid white and it had inconspicuous tubercles each bearing a fine, short hair. It left its old cell and constructed a fresh one in the same piece of wood. There it remained, alive, but without food as far as I could judge, for two weeks. Then it pupated, and at the expiration of three weeks more, there emerged a fine, perfect

specimen of *Litoprosopus futilis*. This moth I have never taken except at Rockledge, on the Indian River, where it is not uncommon. But it has been found by others in various parts of South Florida. I do not know whether its life-history has been recorded.

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THE ASSEMBLING OF THE CECROPIA MOTH.

By O. S. WESTCOTT, Maywood, Ill.

This is a somewhat hackneyed topic, but an experience of mine last Summer is possibly worthy of record.

In the Spring of 1894 I collected a large number of *Cecropia* cocoons, from which the moths began to emerge early in June. On the night of June 9, 1894, I left one female in a cage made of wire gauze. On the morning of the 10th I found thirty-six males about the cage. On the night of the 10th I left two females in the cage, but on the morning of the 11th there were but seven males near it. The weather was oppressively warm, but otherwise the climatic conditions were not noticeably different. On the night of the 11th I left five females in the cage. On the morning of the 12th there were eighty-one males at the cage. Two of these were wrapped in what was apparently a loving, if not conjugal, embrace. I placed them in a cage by themselves and they remained *in coitu* (etymologically speaking) the entire day.

On the night of the 12th I placed six females in the cage. When I looked out of an upper window early on the morning of the 13th there was a cloud of Cecropias on and about the cage and extending from it for several feet in every direction, which reminded me at once of the only flight of *Danais archippus* it has been my good fortune to see. When I once took seven *archippus* at one sweep of an insect net, I thought Lepidoptera were just then abundant, but the present experience was even more striking. A cat was amusing herself in striking down and *devouring* some of the most active ones, leaving, however, the wings. Many were flying away, but the number remaining when I came to count them was two hundred and eighteen. Of these there were five pairs *in coitu* (!). All, however, were males.

On the morning of the 12th a robin was busy among them, but the cat had evidently made way with more than a score.

Whether cats and robins eat moths extensively or not is perhaps not proven, but every one knows that woodpeckers frequently pierce the cocoons; and two pet squirrels belonging to my nearest neighbor ate, with avidity, all with which I supplied them.

Thus in four days I had toled to my cage three hundred and forty-two and more males of this well-known insect. I trust by destroying this number that there will be an appreciable diminution of its numbers in my immediate vicinity the coming season.

NOTE.—Dr. Westcott's mention of the cat feeding upon the Cecropias reminds me of a fact which I have never placed on record, but which has probably been noted by others. Some years ago I visited an uncle in Springfield, Ill., and attached to his house was a large garden filled with flowers of many kinds. Among others a bed of Petunias in full bloom attracted my attention, and I concluded to ascertain what Sphinges came there that evening. When I took my stand I found the house cat quietly crouched close to a cluster of the largest and most attractive flowers; but concluded not to disturb her. Soon a *Sphinx carolina* made its advent and began feeding near the cat, which, to my surprise, was now all alert. Suddenly there was a quick stroke of the paw and a short jump, and mistress cat leisurely devoured her capture, first tearing away the wings. She caught more moths than I did that evening, and I was informed that this was a nightly habit of Pussy's.—J. B. SMITH.

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FOOD-PLANTS.

By J. B. LEMBERT.

I have observed the following species of Lepidoptera oviposit in the Yosemite National Park during the year 1894:

Annaphila decia oviposits on the underside of the leaves of *Enanus douglasii* on February 26th. *Anthocharis reakirtii*, March 29th, on the stalk of *Thysanocarpus pusillus*. *A. sara*, April 13th, on the stalk of *Thysanocarpus pusillus*, *Nisioniades persius*, *Trifolium ciliatum* and other species *Melitæa baroni*, April 9th, *Collinsia torreya* on the underside of the leaves in two lines or rows, one always having one or two more eggs than the other row. *Thecla dumetorum*, April 9th, in the heart of the unopened, dense flower heads of *Hosackia argophylla*. *Euclidia, cuspidea* April 13th, on dried stalks in twos and threes to the number of eight or nine near the preferred food-plants, *Lupinus*

chamisorus. *Kodiosoma*, April 8th, on *Trifolium ciliatum*, *Escholzia epeciodes*. *Gillia achillæfolium*, *Festuca myurus* and dried twigs. *Lycæna piasus*, on the racemes of the *Lupisus densiflora*, and on the bracts of *L. chamisonis* after they have fruited, *Lycæna* var. on the innerside of the unopened buds of the thyrse of the *Æsculus californicus* (Buckeye). *Pyrameis carye*, May 6th, on the leaves of *Lupinus*, upperside. *Lycæna acmon*, on or near the top buds of *Hosackia parviflora*. *Cœnympha california*, May 6th, on dried twigs near its food plant, *Melica bubbosa* (a grass). *Thecla nelsonii*, June 9th, *Libocedrus dicurrens*, always on the shaded side of the leaves. *Ctenucha rubroscapus*, July 10th, on the stalks of *Hosackia forreya* *Alaria florida*, July 10th, *Oenothera brenuis* var. *grandiflora*, buds habits same as the eastern species. *Hepialus lembertii*, most anywhere on the ground and in the edge of marmot holes, wet low ground. *Anthocharis lanceolata*, on the fruit pods of the *Arabis arcuata*. *Chrysophanus mariposa*, on the stalk and the underside of the leaves of *Vaccinium*. *Chrysophanus helloides*, *Oxytheca spugulina* and *Guzoppytum diffusum*. *Melitæa chalcedon*, on *Pentstemon brachycarpa* and not gregarious like the high Sierra variety.

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A CASE OF MIMICRY.

By Otto Lugger.

Among the many curious things encountered among insects few are more interesting than the mimicry shown by many of our pets. It almost seems as if some of them could actually distinguish not simply between colors, but even between the most delicate shades of colors. Those that have hunted for *Catocalæ* have reasons to feel certain that these showy moths know all about the colors of the upper surfaces of their front wings, and that they are perfectly able to select such portions of the bark of trees that harmonize and blend with them. We find the same thing among the Geometridæ, only in this case the color of the upperside of both wings has to come into action, as these delicate moths rest with more or less expanded wings. Some years ago I accidently discovered a member of this family of moths that forms a most peculiar exception to this rule. While collecting

certain kinds of grasses near Lake Harriet, a beautiful sheet of water in the suburbs of Minneapolis, and surrounded in part by a public park with fine roads for driving, I passed a large elm tree. Some ten feet from the ground was a small cavity in this tree, almost entirely hidden by an old spider-web. Happening to look upwards I observed a moth that was not yet represented in my collection, and acting upon the rule that a poor specimen is better than none, I rolled some stones against the tree to enable me to reach the specimen. As I was reaching for it the apparently dead insect took wings and disappeared. Of course this was decidedly unexpected, as the whole appearance of the moth was that of a dead one captured some time ago by a spider. Ruefully looking at the pile of stones, a monument to blasted hopes, I continued my search for grasses, yet the thought of having been duped by an insect rankled in my mind for over an hour, when I reached the conclusion that something had been wrong about these proceedings, and so I retraced my steps to make at least an attempt to solve the mystery. As good luck would have it, the same, or another specimen of the same kind, occupied the identical spot, apparently also dead. With great caution I approached and reached for the insect, when—presto—it disappeared by suddenly flying around the tree, so that my eyes could not follow it or observe it settling. Knowing now that one or more of these moths must be in the vicinity I proceeded as if hunting for *Catocolæ*, by cutting off a twig full of leaves. This, however, wound up the affair in a most unexpected manner, as the rough voice of a policeman ordered me away, even threatened to arrest me for cutting off plants. Telling him why I had done so made little impression upon him, evidently not possessing any entomological inclinations, and I had to postpone further investigations until the following morning. Taking my boy along, and starting early, we found that the coast was clear, and not to offend again I used the twig cut off previously. The very first tree, when brushed with the twig, seemed to be alive with the desired moths, but they disappeared so rapidly among the other trees in the grove that none could exactly be spotted. I now remained stationary and had my boy flush other specimens, and by concentrating all attention upon one individual moth I saw it settle upon a tree and—disappear. By continuing the work of flushing the moths I soon had an opportunity to see the whole operation

performed right before my eyes. A moth landed within two feet from me upon a tree, run rapidly a few inches, and—disappeared. But as my eyes were upon the exact spot hiding was no longer of any avail, and the insect appeared as in the illustration given below, which is taken from a photograph. The moth after reaching the tree, would run to some projecting piece of bark that had a certain grayish color so common upon old elm-trees, then make a quarter turn, and folding its wings in a peculiar way upon the spot selected blended so well with it as to become invisible.

This is not so well shown in the illustration, as the dead insect, though fixed in the exact position, in drying projected farther away from the bark than when alive. If this geometer would rest in the normal position of such moths the color of the upper surface of all wings would be in contrast with the surface upon which it would be resting. Only the color and markings of the underside of the lower wing, and a narrow margin of the upper edge of underside of upper wing, harmonize with the grayish spot mentioned before. These portions, therefore, must be displayed, and all others must be hidden. The insect, by making a quarter turn, and by pushing the upper wings deeply between the lower ones effectually hides all colors not in harmony with the spot selected. This is peculiar enough, but as the colors upon the parts exposed vary to some extent, from very pale to dark, the insect in choosing a spot must select it accordingly. Of the hundreds of moths observed that morning, or until the policeman returned, none could be detected upon the trees if the spot upon which they settled was not carefully kept in sight. According to "Packard's Geometridæ" this interesting moth is *Marmopteryx gibbicostata* Walk.

Mrs. SLOSSON has returned to New York, and will doubtless soon see the Northern Hills at Franconia, N. H.

SOME NOTES ON AMERICAN SPHINGIDÆ.

By W. SCHAUS.

Ællopus titan Cr. and *Ællopus tantalus* Linn. can always be differentiated by the presence in the former species of the gray scales at the anal angle of the secondaries above. I have examined several hundred specimens of both species and have never found the slightest difficulty in separating them. I believe *Ællopus fadus* Cr. to be a distinct species which will be re discovered ere long.

Madoryx pluto.

Sphinx pluto Cr., Pap. Exot. iii, t. 216, E (1779).
Hemeroplanes plutonius Hübn., Verz. bek. Schmett. p. 133.
Madoryx deborrei Bd., Sp. Gen. Het. i, p. 155 (1875).

Boisduval's *M. deborrei* is evidently the ♀ of Cramer's *S. pluto;* the identity was first suggested by Maassen in the Stettin Ent. Zeit. 1880, p. 68, and Mr. C. Oberthür is of the same opinion. I have recently received both sexes from Jalapa, Mexico, the species not having been previously recorded from Central America.

Calliomma denticulata sp. nov.

This species only differs from *C. parcæ* Fabr. in having the outer margins of the primaries very denticulate, and I should hesitate to consider it a distinct species, had I not seen a second specimen in the Saunder's coll. at Oxford. Expands 63 mm.

Hab.—Jalapa, Mexico.

Chærocampa eumedon.

Chær. eumedon Bd., Sp. Gen. Het. i, p. 272, 1875.
Chær. ortospana Druce, Amer. Nat. Hist. (6), iv, p. 77, 1889.

I have examined the types of *eumedon* and *ortospana*, and find them identical.

Pachylia resumens Walk. and *Pachylia inconspicua* Walk. are the same, the latter being a rather large female.

Oryba achemenides.

Sphinx achemenides Cr., Pap. Exot. iii, t. 225, C. (1779).
Oryba robusta Walk., (nec. Bd.) Cat. Lep. Het. B. M. viii, p. 197 (1856).

As already stated by Mr. Druce in Amer. Nat. Hist. 1890, p. 214, Cramer's and Walker's species are conspecific.

Oryba kadenii.

Pachylia kadenii Schauf., Nung. Otiosus i, p. 16 (1870).
Pachylia robusta Bd., Sp. Gen. Het. i, p. 135 (1875).

Clanis imperialis Druce, B. Cent.-Amer. Heb. i, t. 3, f. 1 (1883).
Oryba imperialis Druce, Amer. Nat. Hist. (6), v, p. 213 (1890).

Amphonyx.

In Novitates Zoologicæ, vi, p. 91, the Hon. Walter Rothschild has added to the confusion already existing, in regard to the species of this genus, by failing to compare Boisduval's descriptions with the fig. on pl. v, of the Sphingidæ. In the index to plate v, fig. i, is said to represent *A. godartii*, whereas in reality it is an excellent representation of *A. beelzebuth*, agreeing with the description and the type itself which I have examined in Mr. Oberthür's collection ; the species therefore stands:

Amphonyx beelzebuth Bd., Sp. Gen. Het. i, p. 63, t. 5, fig. 1 (wrongly named *godartii* in the index to plate).
Amphonyx rivularis Druce, (nec. Butl.) B. Cent.-Am. Het. i, t. iii, f. 4.

Amphonyx rivularis Butl., is a very distinct species, ranging from Mexico to southern Brazil.

Amphonyx godartii.

Amphonyx godartii Bd., Sp. Gen. Het. i, p. 65 (1875).
Cocytius affinis Rothsch., Nov. Zool. i, p. 92.

In a long series of specimens from Mexico, Venezuela and Brazil, I can distinguish no difference. Possibly *A. godartii* is a synonym of *A. duponchelii* Poey, but I have no Cuban material, and the specimens so named in the B. M. seem distinct.

Amphonyx medor.

Sphinx medor Stoll, Pap. Exot. iv, t. 394, A. (1782).
Amphonyx tapayusa Moon, Pr. Liverpool Soc. xxxvii, p. 245 (1883).

Typical specimens of *A. tapayusa* are in the coll. of E. D. Jones, Esq., and cannot be separated from specimens of *A. medor*, which I obtained ex larva at Jalapa, Mexico.

Amphonyx walkeri.

Amphonyx walkeri Bd., Sp. Gen. Het. i, p. 67 (1875).
Amphonyx staudingeri Druce, Amer. Nat. Hist. (6), ii, p. 237 (1888).
Cocytius magnificus Rothschild, Nov. Zool. i, p. 92, pl. vii, f. 21 (1894).

Several specimens including the type of this fine species in the coll. of Mr. Oberthür agree perfectly with *A. staudingeri* and *C. magnificus*.

Protoparce nicotianæ.

Sphinx nicotianæ Bd., Sp. Gen. Hist. i, p. 75 (1875).
Protoparce jamaicensis Butl. Tr. Zool. Soc. Lond., ix, p. 608 (1877).

I have examined both types and find they represent the same species.

Protoparce hannibal.

Sphinx hannibal Cr., Pap. Ex. iii, t. 216, A (1779).
Sphinx hamilcar Bd., Sp. Gen. Het. i, p. 79 (1895).

I have seen Boisduval's type of *S. hamilcar* and agree with Mr. Oberthür, who has placed it as a synonym of *S. hannibal.*

Protoparce capsici.

Sphinx capsici Bd., Sp. Gen. Het. i, p. 80 (1875).
Pseudosphinx morelia Druce, Am. Nat. Hist. (6), xiii, p. 168 (1894).

I have examined both types and they are identical.

Sphinx lugens.

Sphinx lugens Walk., Cat. Lep. Het. B. M. viii, p. 219 (1856).

I believe this species has been wrongly identified in most American collections. The *lugens* of the Neumoegen collection is certainly not Walker's species. Correctly named specimens are in the collection of Prof. E. T. Owen, of Madison, Wis. Boisduval, Sp. Gen. Het. i, p. 87, also wrongly considered his *Sphinx merops*, Lep. Guat. p. 73, as representing *lugens* of Walker. *Sphinx merops* Bd., is the northern form of *Sphinx justiciæ* Walk.=*Anteros* Men. and differs chiefly in the absence of the small sub-dorsal orange spots which exist on the posterior portion of each abdominal segment in *Sphinx justiciæ*, the Brazilian form. The true *Sphinx lugens* Walk. was unknown to Boisduval. In the Neumoegen collection I saw several specimens of *Sphinx lugens* Walk., I believe, under the name of *andromedæ*, and what stood under the name of *lugens* was a species which I had not seen previously, and may be *eremitioides* Strk., which would therefore be a good species.

Sphinx andromedæ.

Sphinx andromedæ Bd., Sp. Gen. i, p. 89, Lep. Guat. p. 74 (1870).
Sphinx separatus Neum., Ent. Am. i, p. 92 (1885).

I have specimens compared with the above types. *Sphinx separatus* is a trifle paler than my Mexican specimens of *andromedæ*, but they are inseparable. In the British Museum collections, *Sphinx andromedæ* stands as *Sphinx leucophæata* Clem., and if correctly identified, Clemen's name will have priority, but, personally, I believe that *S. leucophæata* is a northern form of *Sphinx lanceolata* Felder, which is common in the State of Vera Cruz, Mexico.

Sphinx reevii.

Hyloicus reevii Druce, Ent. Mo. Mag. xix, p. 18, 1882.

Sphinx baruta Berg., Am. Soc. Argent. xv, p. 151, 1883.
Sphinx cossoides Rothsch., Nov. Zool. i, p. 94, pl. vii, f. 22, 1894.

On page 542 of vol. i, of "Novitates Zoologicæ," Mr Rothschild calls attention to the identity of his *S. cossoides* with *Hyloicus reevii* Druce, but he does not give the complete synonymy.

Lapara bombycoides.

Lapara bombycoides Wlk., Cat. Lep. Het. B. M. viii, p. 232 (1856).
Ellema harrisii Clem., Journ. Ac. Nat. Sc. Phil. iv, p. 188 (1856).

After carefully comparing my own specimens and those of the B. M. with Walker's type in the Saunder's coll. at Oxford, I can find not even varietal reasons for separating the above.

Dilophonota merianæ.

Erinnyis merianæ Grote, Pr. Ent. Soc. Phil. v, p. 75, t. 2, f. 2, 1885.
Ancery x omphaleæ Bd., Lep. Guat. p. 72 (1870).

With the exception of Prof. J. B. Smith, in his monograph of the Sphingidæ of N. A., the English writing Entomologists have failed to notice that Boisduval himself draws attention to the above synonymy in the Sp. Gen. Het. i, p. 128. As mentioned by Mr. Rothschild in Nov. Zool. i, p. 541, *D. merianæ* is a race of *D. lassauxii* Bd., *Anceryx lassauxii* Bd., Bul. Soc. Ent. France (3), vii, p. 157 (1859), which has the secondaries entirely black, all intermediate forms being found.

Dilophonata alope.

Sphinx alope Dru., Ill. Ex. Ent. i, t. 27, fig. 1 (1773).
Sphinx fasciata Swains., Zool. Ill. iii, t. 150, f. 2 (1823).
Auceryx edwardsii Butl., Papilio 1, p. 105 (1881).

The above represent our species, which is extremely abundant throughout tropical America.

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CALIFORNIA LEPIDOPTERA.

By MAX ALBRIGHT, Military Home, Los Angeles Co.

The December number of the ENT. NEWS contains a complaint that so few specimens are entering cabinets, which is very much to be regretted. As for myself, my hobby is Lepidoptera, and having taken up my neglected studies, only two years ago, I have explored the vincinity of this Home, and between Los Angeles and Santa Monica to some extent, and send a list of some which were taken by myself and which have been identified either by Dr. H. Strecker, of Reading, Pa., or by Prof. H. H.

Behr, M.D., Vice-President of the California Academy of Sciences, San Francisco, Cal.

Papilio rutulus,
" *eurymedon*,
Pieris protodice,
" *chloridice*,
Anthocharis sara,
Meganostoma eurydice,
Colias eurytheme,
Lycæna acmon,
" *sæpium*,
" *arota*,
Apodemia var. *virgulty*,
Charis guadeloupe,
Danais plexippus,
Agraulis vanilæ,
Argynnis coronis,
Melitæa gabbii,
" *chalcedona*,
Vanessa satyrus,
" *antiopa*,
Pyrameis atalanta,
" *cardui*,
" *carye*,
Junonia cœnia.
Limenitis lorquini,
" *bredowii*,
Satyrus sthenele,
" *silvestris*,
Cœnonympha california,
Pamphila campestris,
Pyrgus syrichtus,
Nisoniades tristis,
" *catullus*,
M. quinque maculata,
M. cingulata,
Deilephila lineata,
Ctenucha brunnea,
Lycomorpha miniata,
Arctia autheola,
" *arizonensis*,
" *acræa*,
Arachnis picta,
Halisidota maculata,
Cossus robiniæ,
Plusia gamma, v. *californica*,
" *biloba*,
Harpyia occidentalis,
Heliothis armiger,
Cidaria californiata,
Homaptera lunata,
Agrotis samia,
" *tamlifera* and several unidentified,
Eutrepela nubilata,
Tetracis truxiliata,
" *ægrotata*,
Azelina huberniana.

These are a few ; the last eighteen months have been very bad for collecting on account of the great drought, which was broken by a good rail fall on the 5th and 6th inst.

Popular Entomology—A Chase for a Butterfly.

There was a tradition among the young lepidopterists of the American Entomological Society, (1883) that some of the old members long since dead, and if still collecting, they are doing so in another sphere, had the pleasure of taking that delicate and pretty little orange-tipped butterfly, *Anthocharis genutia*. There were two localities mentioned, one was the bank of the Delaware, near Westville, N. J., and the other to the west of the Quaker

City, a place called Fox Chase. You all know that great desire to possess what we do not have, which is so strongly developed in the enthusiastic naturalist and collector. We wanted "the orange tip," and we wanted it badly. The time to look for it was in the Spring, when all nature was smiling and budding into life again. It was the time when the great shad seine was being hauled in, and we frequently watched this interesting process while looking for the butterfly on the white flowers (*Cerastium arvense*) which grew along the river bank. This locality was collected over for a number of years in the early Spring, but without success. It was in the year 1889 that at last we were rewarded; it was the 6th of May, and the day was still, clear and warm. Two specimens were taken; one was beautifully fresh and and not long from the chrysalis and the other faded and torn. We were paid for our trouble at last, but the reward was not very great, yet we were happy in having obtained the species in our own territory. The captured specimens were females, and the female lacks the orange tip to the wings, being entirely white. A few years after (1892) we succeeded in discovering a locality that has since given us our supply of this species. Having a number of botanical friends who went out on weekly excursions around the surrounding country, we asked one of them who was a good observer of such things, to keep a lookout for this insect. He reported seeing the species in some abundance near a place on the Perkiomen Creek called Arcola. This is twenty-eight or thirty miles from Philadelphia, and the train leaves very early in the morning. Of course we determined to go for them the very next day if the weather was suitable. Arising early in the morning we found the day everything that need be desired. The money invested in an excursion ticket, would have paid for the NEWS for a whole year, but we were willing to take some chances on the result, even if it became necessary to make an assignment afterward. The ride was an interesting one ; we passed much historic ground, including Washington's headquarters at Valley Forge. We changed cars, taking the little narrow gauge railroad that runs along the picturesque Perkiomen. It was the morning of May the 9th, 1892, that this little trip was taken, and it was nine o'clock in the morning when we stepped off the cars at the little station at Arcola. Our net was gotten in order; cyanide jar in readiness and the chase began. The old bridge was crossed,

and according to directions we passed the flour-mill on the east side of the stream and made for the thick woods that covers the hills along the creek. Beyond the mill, as might be supposed, the first thing seen was the ubiquitous sign—NO TRESPASSING; next on the list in the usual order was the hamlet cur which made all the noise it knew how; next was the old man himself, but he said nothing, so we mustered up courage and made for the kindly shelter of the woods beyond. The banks of the creek run up for a height of 100 to 150 feet above the stream and are quite heavily wooded, and it was in this woods, and in a rather open thicket in the centre of it that we were told our coveted butterfly was to be found. We wandered around through the woods, and up and down the banks, but not a sign of an *Anthocharis* was seen. We were disconsolate; here was a day wasted—31 miles from home and our dollar gone. But fortunately there was a good time coming; about ten o'clock a small butterfly was seen flying close to the ground, and moving along in a fairly straight line with a quick flutering flight; it was netted on the wing, and we had the pleasure of taking our first orange-tip, a fine ♂ *Anthocharis genutia*.

From this on, they flew in some abundance, and were seen in a number of directions, traveling along, close to the ground, after their peculiar habit. While making a downward stroke of the net it came in contact with the sharp end of a broken off sapling, which was not noticed in the grass and weeds. Now here was misery ; orange-tips coming in many directions and a big hole torn in the bottom of the net. Fortunately we had our surgical pocket close along and the rent was sewed up with a surgical needle and iron dyed silk. To make a long story short, twenty-eight specimens were caught in a few hours, and we took the train for home, weary but happy, and now beautiful specimens of the orange-tip grace our cabinets.

———o———

COCOON MIMICRY.

By RICHARD E. KUNZE, M.D., New York.

The discovery of an albino cocoon in the folds of an American silk flag, as well as a number of others varying in tints from that of a light-colored barrel stave to a dark-brown cocoon spun up under circumstances, which left no doubt in my mind, that it was

for the purpose of *protective mimicry*, led me to write up this very interesting subject. On May 30, 1894, I removed two small silk flags standing with a number of others in the corner of a room kept for plants and pupæ during Winter, with a view of placing there in a window in commemoration of Decoration Day. One of the flags would not unfurl, and to my surprise found a *white* cocoon of the hybrid ex *Attacus ceanothi et A. ceoropia*, spun up between the *white bars* of the silk—a perfect *albino* of the fleeciest white silk. This cocoon contained a larva, which perished during the transformatory period nearly a year ago. This larva escaped from one of several apple barrels in which full-grown larvæ of my hybrids had been placed with a quantity of food-plant there to transform. Barrels were covered with cheese-cloth and fastened with cotton twine.

All the other cocoons of both of my hybrids ex *ceanothi et cecropia* and ex *columbia cecropia*,* which were spun up on branches of choke cherry (*Prunus serotina*), very nearly resembled the color of those twigs, or a little darker than a light umber-brown. A few cocoons were spun up to the cheese-cloth and others to the side of the barrel near the top of each barrel.

These cocoons were ever so much lighter in color, and that portion of cocoon adhering to barrel was the counterpart of color of the maple staves, while the part fastened to the cheese-cloth agreed in tint with unbleached muslin. It will be seen that some of the cocoons were of two different tints, according to position where attached. Cocoons spun up against the cloth were of quite the same color, and of these I had altogether about ten in number. Cocoons found attached to barrel staves were of the color of the wood, and of such I had from fifteen to twenty in all. When found adhering both to cloth and wood, two tints *protective* in every way were the result.

The cheese-cloth was a little soiled from frequent use over the barrels in which the larvæ were raised in my cellar. When larvæ were full grown they were transferred to other barrels on top floor of house, and each of the barrels contained from ninety to one hundred larvæ. Of *ceanothi et cecropia* there were three hundred and eighteen cocoons, and of *columbia et cecropia*

* Cocoons of *columbia et cecropia* were all, when attached to stem of food-plant, a shade or two darker than similar ones of *ceanothi et cecropia*. But when former were attached to barrel these cocoons were of a protective color.

only thirty-two cocoons, having from accident lost the most of my young larvæ of the last mentioned hybrid.

June 11, 1894, I found another cocoon made by an escaped larva out of one of the barrels, and very forcibly illustrating *protective mimicry*. I espied on the pine-floor of my plant-room, close by a bundle of printed American flags, tacked onto plain white pine sticks which had been undisturbed since New York's Columbus Celebration more than a year ago, a small female hybrid of *ceanothi et cecropia*. I failed to account for its presence there, having in January previous removed all of the hybrid cocoon to my office below. I examined the bundle of flags, untying the sticks, and there found between two of the pine-wood sticks a cocoon attached to the wood of both, and in color not distinguishable from the wood. I cut off that portion of those two sticks, leaving the cocoons in situ, which I sent to the editor of ENTOMOLOGICAL NEWS for preservation and future use, the same as I had previously done with other cocoons illustrating *Cocoon Mimicry*. By thus clinching the nail of necessary evidence, we escape the carpings of cynics, who like to argue from a more hypothetical point of view. Regarding color, I would say, that this last discovery, illustrative of cocoon mimicry, resembles cream-color more than any other, and compares favorably with cocoons of my hybrids found attached to the cheese-cloth cover of barrels.

I am sorry now that I did not preserve all of my light-colored cocoon or pupæ-cases found, and illustrating so forcibly the claim advanced in this paper. Many of those cocoons spun up to the cheese-cloth and barrelstaves, I sent out to my numerous foreign and native exchanges, along with darker ones found on stems of *Prunes serotina*. Dark cocoons were never found attached to side of barrel, and such of the dark ones, which spun up in the cellar before larvæ could be removed, were of the same shade as those found on food-plant in the barrels of upper part of house.

In further evidence of *Cocoon-Mimicry*, I must report another find of an *albino* cocoon of *Cerura multiscripta*, which I reared from a collected larvæ the first week of July, and from which emerged a perfect imago during the last week of same month in 1894. This cocoon was spun up between inch-strips of white blotting paper and the sides of a glass-jar used for breeding cage of *Cerura*. The strips of paper were placed between cover and

body of jar for purposes of ventilation, The larva had scraped off bits of blotting paper, mixing it with its oral secretion until plastic enough for house-building purposes. A light coating of this material was glued to the sides of the glass jar, and the rest was forced out toward the inner space of the cage, making a cell with a very convex wall. In other words, this larva ate its way into the middle of a strip of very thick blotting paper, throwing out the particles removed in the shape of a cell-wall, until it found space sufficient for transforming into a paper. The latter was plainly visible from outside of the jar, but not from opposite side. The thin coating was with difficulty removed from the glass so as not to mutilate the cocoon, and the latter I forwarded to Dr. Henry Skinner, editor of ENT. NEWS. Other cocoons of *C. multiscripta* reared in the same cage, were of the usual color and firmness, a kind of wood-brown and strongly made from the woody fibre of willow bark. Before I knew how to raise larvæ of various species of *Cerura* to pupation, and had not provided cage with canes of food-plant of sufficient thickness for larva to gnaw out a concavity to form the rear wall of its cell, they invariably perished, and would not favor me by utilizing strips of blotting paper.

ATTENDING the Farmers' Institute last week I was much interested in the (Prof. A. J. Cook) lecture on Insects. To-day we have been observing a phenomenon that is entirely new to me. At about nine o'clock A.M. our attention was attracted to a remarkable flight of butterflies. Our grove is bordered on the east and west sides by high close-set cypress trees. On the western side these trees stand about thirty feet from the first row of large orange trees. There was a stream of butterflies down this lane from the south to the north. This lane is about eighty rods long; a barn stands so as to cut it in two—about twenty rods from the avenue. The flight was rapid, and continued until three P.M. From nine until twelve M., as nearly as we could count and estimate, 200 butterflies passed each minute. After twelve the hedge cast a shade over the open space, but there were large numbers passing. At two o'clock we counted about fifty per minute. At four o'clock, only an occasional butterfly could be seen. I enclose you some specimens. A very good description is found in "The Natural History of New York."—*Pyrameis cardui.* The colors do not correspond exactly, but the markings are quite accurately described. Now this may be of no particular interest to you, from the fact that it may be common, but to me it was a novel sight.—GEO. D. FARNHAM, Riverside, Cal.

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., MAY, 1895.

LABELING INSECTS.

A NEW collecting season is about to open, indeed for a number of our subscribers it has already commenced, and we have had the pleasure of receiving specimens taken during March. Our attention is constantly called to the utter carelessness of most collectors in regard to putting proper data on their specimens, whether pinned or in papers. Too many are satisfied with the single label "mundus." We are thoroughly convinced that a specimen labeled "mundus" is depreciated in value from 50 to 75 per cent. If the specimen is a mounted one there are two things that should invariably be on the PIN; one is the EXACT locality where captured, and the other is the date of capture. It is not safe to have the date and exact locality on the name label as this gives an opening or chance for error. If on the pin it always travels with the insect and is part and parcel of it. I think that a number of our large collections made in the past will lose much of their value on account of insufficient data with the specimens, as our studies are largely biological and many of the problems of the future will be solved by accurate studies of distribution and the appearence of species and broods. Entomology has passed beyond the time when the mere arrangement of the named specimens in the cabinet was the end of all work. It wont do either to merely put on a specimen the name of the State where captured. There is an exceedingly interesting and valuable paper on this subject by T. D. A. Cockerell (Can. Ent. vol. xxi, p. 46) which we wish all entomologists could read, as Mr. Cockerell says, many do not realize what only a State locality may mean. "It may mean distinct zoo-geographical regions, any altitude from (in Colorado) 4000 to 14,000 feet, an area of 103,948 square miles.

That Colorado may mean snowy peaks, mountain forests or valleys, or level treeless plains, each presenting a distinct fauna of its own." Also we frequently depend on data for additional specimens, but if we have no such date we are at a loss. A number of times we have directed collectors how to get good things by looking up the data, but in many cases this could not be done as the author or the original collector was satisfied with giving the insect as found in Texas for instance (area 274,356 square miles), or in many cases the locality label was only "mundus."

THE latest album of the American Entomological Society, contains the pictures of D. S. Kellicott, J. B. Lembert, F. E. Blaisdell, W. R. Reinicke, G. B. King, J. L. Hancock, Edw. Norton, P. P. Calvert, A. J. Snyder, B. Neumoegen, W. B. Alwood, Wm. Grey, O. S. Westcott, C. H. T. Townsend, W. A. Nason, Herman Aich, F. Rauterberg, and room for more.

IN a recent letter, Mr. Wm. Schaus states that Mr. Herbert Druce informed him that he had lately received several specimens of *Eudryas Stae Johannis* Walker, from Mexico. This will be of interest to American Entomologists.

MOUFFET, referring to Feas, makes the following observations: "The lesser, leaner and younger they are, the sharper they bite; the fat ones being more inclined to tickle and play; and then are not the least plague, especially when in greater numbers, since they molest men that are sleeping and trouble wearied and sick persons, from whom they escape by skipping; for as soon as they find they are arraigned to die, and feel the finger coming, on a sudden they are gone, and leap here and there, and so escape the danger; but so soon as day breaks, they forsake the bed. They then creep into the rough blankets, or hide themselves in rushes and dust, lying in ambush for pigeons, hens and other birds, also for men and dogs, moles and mice, and vex such as passe by."--*Theatre of Insects*, p. 102.

AT a time when there were great swarms of Locusts in China, as we learn from Navarette, the Emperor went out into his gardens, and taking up some of these insects in his hands, thus spoke to them: The people maintain themselves on wheat, rice, etc.; you come to devour and destroy it, without leaving anything behind; it were better you should devour my bowels than the food of my subjects. Having concluded his speech, the monarch was about to put them in a fair way of "devouring his bowels" by swallowing them, when some that stood by telling him they were venomous, he nobly answered, "I value not my life when it is for the good of my subjects and people to lose it," and immediately swallowed the insects. History tells us the locusts that very moment took wing, and went off without doing any more damage; but whether or not the heroic Emperor recovered, leaves us in ignorance.—*Cowan's Curious Facts.*

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

THE SAN JOSE SCALE.—No. 4, of volume vii of "Insect Life," contains an article on this subject by Mr. L. O. Howard, in which he adds to the life-history of the insect, gives a record of what insecticide experiments have been made and states the distribution of the species so far as known at the present time. An interesting suggestion is made that possibly the scale is confined to the upper austral fauna in the East, and that it will not trespass to any extent upon the transition regions. The facts so far as we know them in New Jersey support this, because in spite of all my inquiries, I have not found any trace of the scale north of the Red Shale, and this in New Jersey certainly marks a distinct region. In fact this shale, upon which New Brunswick is situated, seems to belong to a distinctly more northern faunal region than many points further north; but interesting as this speculation may be, it is not what I intended to say on this subject. Mr. Howard has again pointed out that the scale was largely distributed from New Jersey, and his conclusions seems to be that the insect has so well established itself that we can scarcely hope to exterminate it; that is, it occurs in so many different places that it will remain unnoticed in some until it gets beyond practical control. It is possible that Mr. Howard is right, and I have been regretfully forced toward the same conclusion, without being thereby induced to cease efforts looking towards its extermination. The location of the New Jersey nurseries has been published in the agricultural journals, and, as nothing can be gained by concealment, much may be gained by a plain statement of the facts as they exist at the present time.

Plum Trees bearing the scales were introduced into New Jersey at about the same time by the Messrs. Parry, at Parry, Burlington County, N. J., and by the J. T Lovett Co., at Little Silver, Monmouth County, N. J. These two localities are at opposite sides of the State, the one near the Delaware, the other close to the Atlantic Coast; both are on approximately the same formation, although Little Silver is more than 20″ north of Parry. At Little Silver all the infested trees were grown one year, some of them longer, in a plot upon which was a long row of bearing Bartlett pear trees. The original plum trees were used to bud from, some were sold and all have long since disappeared; but from them the pear trees became infested. This row of bearing pear trees has been the point from which the nursery stock in the vicinity has been annually infested. At the time when I first saw the trees in the Spring of 1894, they were literally covered to the extreme tip of the twigs with the scale; it seemed as if there was scarcely room for another insect to fasten itself anywhere upon the bark, and many of the trees were practically dead. Mr. Lovett had already directed that these be taken out; not because they were

scaly, because that he had not realized, but simply because they were dying and of no further use. When I pointed out that every one was badly infested, he directed that they be all cut down and burned. This direction was carried out, because on a later visit I found that the trees had disappeared. In a large block of apple, pear, quince, plum and other fruit trees, not far from these bearing trees, I found the scales scattered everywhere; scarcely a plant was entirely free, while none was very badly infested. It was a general seeding down and at that time the larvæ were moving about. I pointed this out to Mr. Lovett and warned him of the danger in sending the trees out. He promised not to do so without treatment, and I arranged that later in the season I would again visit the nursery that I might see just how matters stood. This visit was made after mid-summer, and I found an increase in the number of scales on the nursery stock, found the original source of infection gone, and discovered the scales on a few other trees in another part of the nursery. These trees were destroyed by Mr. Lovett, and there remained then only one block upon which the San José Scale existed. After consultation with Mr. Howard concerning the practical details of gas treatment of nursery stock I recommended a fumigating box in which all the trees should be exposed to the gas before being sent out. February 22nd I again visited the nurseries with Mr. Collingwood, of the *Rural New Yorker*, and at his request. The stock had all been removed from the infested plot, and the apple trees, comprising much the greatest proportion of the number, were heeled in close by, in trenches. Mr. Lovett showed us the box constructed according to my suggestion, and which was suitable for the purpose, and stated that everything on that block had been fumigated. An examination of the scales on a considerable number of the apple trees indicated that the application had been successful. According to the foreman, who had actually attended to the work, the exposure to the action of the gas had been between one and one-half and two hours, and the amount of cyanide used was fully up to the amount recommended. I did not find a single living scale insect in the course of the examination made by me. All that I examined were white and flattened; none of them plump and yellow: nowhere could I get any appearance of life. It was, of course, a physical impossibility that I should examine each of the five or six thousand trees in the trenches; but I did examine trees here and there at different parts of the rows and made a point, as far as possible, of examining the scales where they were grouped most densely, and would be naturally most difficult to destroy. I believe that the treatment was as nearly successful as one treatment can ever be; but asked Mr. Lovett, as a matter of extra precaution, to fumigate again before sending out the stock, which he promised to do. The other stock that had been upon this nursery block had been in great part sold, but there yet remained a considerable number of pear trees of different varieties. These I found to be infested, and on these, though according to Mr. Lovett's statement, they had been treated as had the apple trees, the scales were alive.

There was no question of this, because everywhere plump, yellow insects were found under their scaly covering, and I could scarcely believe that they had been actually exposed to the gas; if they had, the work must have been so carelessly done as to be absolutely ineffective. The ground at this time was frozen solid, and Mr. Lovett had his man chop out with a hatchet those that I found were scaly, and he finally promised to destroy all the trees that had come from that particular block, except the apple trees already examined and found practically free from danger. Now, as a matter of fact, without almost criminal carelessness the scales can be completely exterminated in this nursery during the present season. It needs only the destruction of such stock as remains on hand at this time. There are no bearing trees that are infested with the scale; yet Mr. Lovett, as a matter of extra precaution, has declared that he will cut out what few remain in the nursery. If this is done, I see no reason why any stock grown in the future on this land should not be entirely safe and free from the scale.

The situation of Parry is somewhat different, and yet the history is nearly the same. Here also plum trees were imported from California, and these were infested by the scale. The trees remained in the nursery rows for two or three years, and were used to bud from. They never did well and were eventually taken out and destroyed; but the mischief had been done; the scales had spread from them to bearing trees in the vicinity. Fruit growing is a very important feature on the Parry farms, and a considerable acreage of trees soon became seriously infested. In the home orchards the ground is utilized to the greatest possible extent and low plants and shrubs are grown in portions of it. Among others currants, both black and white, became very seriously infested by the scale. We had, therefore, an abundant supply of sources from which nursery stock could become infested year after year; and this actually took place. When the Messrs. Parry realized that their orchards were so badly infested and that the nursery stock was also well spotted over, several blocks of valuable trees were taken out entirely and burnt, without any attempt made to treat them. Certain other varieties that did not seem to be badly troubled were left, with the idea that they might be treated and saved. I visited the nurseries at intervals during the Summer, and during this time a number of experiments were made as to the possibility of using the kerosene emulsion successfully against the scales. To some extent the applications were advantageous, especially where made when the larvæ were active, or just after they had set and before the scale had become impenetrable. But it was found that this was a very unreliable method and I advised making a Winter campaign; which suggestion was adopted for nursery stock, before it was sent out, the gas treatment was advised, and on February 26th, when I last visited nurseries, almost all that was heeled in had been thoroughly treated and on it I did not find living scales. Some parts of rows had not yet been fumigated and there plenty of living scales were found, showing at once a strong

contrast between treated and untreated portions. The fumigation had been interfered with by the heavy storms which had piled up the snow in such a way as to prevent practical work with the tent that had been constructed to cover the plants in the trenches. In heeling in the stock had been blocked in such a way as to make it convenient to cover for purpose of fumigation, and I believe that the treatment, so far as applied, has been successful. In the nursery rows many of the one year old shoots were more or less scaly, and all these had been thoroughly treated with caustic potash, every stick having been separately washed with a solution of about one pound, or more, in a gallon of water. The application was so severe that of some varieties a large proportion was killed, while in others there seemed little or no injury. As against the scale it had not been entirely successful, so there remain a number of one year old trees in the nursery rows that require further treatment. The scales have been so thinned down, however, that there is little chance of their spreading from the points at which they now exist. Many of the worst infested bearing trees, and especially those that were in the nursery plots have been cut down and burnt. In the orchard close by the trees have been cut back to the trunks and larger branches, and these have been so thoroughly washed, that there is no present danger of a spread from them, even if destruction has not been absolute. In providing for a new supply of trees the infested territory will be entirely abandoned and new land distant from bearing trees has been selected. Practically the two nurseries in New Jersey which originally distributed the scales are now the safest places to buy stock, and I believe that there will be no danger from any stock grown by them in the future. It will take some time to exterminate the scale completely on the Parry place; not on their nursery land so much as in their orchards. The nursery land can be, and will be, entirely cleared, leaving no scaly shoots or plants. The orchards cannot be in bearing condition again for two or three years to come, and this will give opportunity for the most radical kind of treatment to be applied to the trunk and branches.

Now a few words on the applications that have been made, and on the success attending them. Practically the fish-oil soaps has been most satisfactory, when used at the rate suggested by Mr. Howard—two pounds in one gallon of water—which is also the proportion recommended by me. I have received, within the past weeks, samples of twigs from a badly infested orchard, and on these I have failed to find living scales. Of the many hundreds which I turned over and examined under a good dissecting microscope, I found not one that showed the least trace of life. The treatment had been with a soap made by the farmer himself. He writes that he used "5 pounds of seal oil to one can of Lewis's lye, mixed according to directions which came with the lye. It made soap immediately. This I dissolved according to directions in Bulletin, two pounds of soap to a gallon of water, and applied with a whitewash brush on the 9th of this (third) month. I treated a few trees about four days

previous to this which I gave a second coat on the 9th, as there had been a rain the next night after the application." I received, at my request, specimens of the worst infested twigs, on which the scales were massed so as to conceal the bark entirely, and here also I failed to find a single living insect. I do not believe that we need quite despair of eradicating the scale, provided we can bring the farmers to a realizing sense of the importance of the matter, and this I think can be done in New Jersey at least.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of catalogusers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

NOW READY.—The new Supplement to Henshaw's List of Coleoptera of America north of Mexico, has been completed, and will be mailed on receipt of price, **50 cents** per copy. Application for copies should be made to the Treasurer. See advertisement elsewhere.

Mr. PHILIP LAURENT contemplates a Spring collecting trip to Florida.

THE COTTON SCALE INSECT.—In 1856, Fitch described as a new species, *Aspidiotus gossypii*, found at Ningpo, China. This insect has not been seen since, but the short description might apply to immature specimens of some *Chionaspis* or *Diaspis*. All things considered, I should prefer to place it in the former genus, pending its rediscovery on the original food-plant at the original locality, or an examination of the types if they still exist. The purpose of this note is partly to draw attention to the species, and perhaps so lead to its re-discovery; but also to protest against the introduction of the name into our faunal lists, by Mr. Ashmead, as an *Aleyrodes*. (Ins. Life, vol. vii, p. 323). What possible reason there can be for identifying an *Aleyrodes* from Mississippi with Fitch's Chinese insect, I cannot imagine.

As having some bearing on the matter, I may add that at Kingston, Jamaica, I found numbers of *Chionaspis minor* Mask., and *Diaspis amygdali* form *lanatus*, on stems of cotton, mixed together. The orange-red ♂ of *Diaspis* were hatching on Aug. 8, 1892.—T. D. A. COCKERELL.

Mr. CHAS. LIEBECK expects to make a flying trip to the South this month, and hopes to have a few days in the mountains of east Tennessee, looking for *Cychrus*.

THE Sandwich Islands have the following tradition in regard to the introduction of Fleas into their country: Many years ago a woman from Waimea went out to a ship to see her lover, and as she was about to return, he gave her a bottle, saying that there was very little valuable property (*waiwai*) contained in it, but that she must not open it, on any account, until she reached the shore. As soon as she gained the beach, she eagerly uncorked the bottle to examine her treasure, but nothing was to be discovered.—the fleas hopped out, and "they have gone on hopping and biting ever since."—*Jenkin's Voy. U. S. Explor. Exped.*, p. 385.

IN going through my field book, I find a little incident recorded about the tenacity of life, of a *Pap. turnus* larva which may be of interest to some Lepidopterists.

Sometime in July last, a friend of mine from here visited in Vermont, and knowing my fondness for anything pertaining to natural history, procured a larva, which as he said, was in the act of covering part of the underside of a leaf with a silky substance; this was on Aug. 1st. Not having a suitable receptacle on hand, he took leaf and larva, arriving at the house, put the larva,—which, in the meantime, had crawled off the leaf—in a little wooden barrel-shaped box and temporarily, as he thought, in his trunk; being that very day called to some place in Connecticut, forgot all about the larva, and returned home on Aug. 18th. In opening his trunk came across the box, which he post haste brought to me. We found the larva, which proved to be a *turnus* minus food, still alive, but greatly reduced in size. *Turnus* is rather scarce around Elkhart,—although in beating the basswood for *Sap. vestita* and *lateralis* I have sometimes found the larva.—I was anxious of finding out what the result would be of so long a confinement without food and shut up in an almost air-tight box. Procuring food and comfortable quarters in my vivarium, it nevertheless refused to eat, and died on Aug. 24th. Now, I think under the conditions the larva was kept, it is remarkable that it survived so long.

P. J. WEITH.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be limited to twenty-five for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, March, 1895.—On the formation of new colonies by *Termes lucifugus*, J. Perez (transl. from Compt. Rend. Acad. Sci. Paris).

2. LE NATURALISTE CANADIEN. Chicoutimi, Quebec, March, 1895.—Our insect friends and insect foes, Rev. T. W. Fyles.

3. FLOWERS AND INSECTS by Charles Robertson.—No. xii [Clematis, Ranunculus, etc.] Botan. Gazette, xix, 3, March, 1894.—Rosaceæ and Compositæ, Trans. Acad. Sci. St. Louis, vi, 14, April 26, 1894.—No. xiii [Dodecatheon, etc.] Bot. Gazette xx, 3, March, 1895.

4. BULLETINO DELLA SOCIETA ENTOMOLOGICA ITALIANA, xxvi, 2. Florence, June 27, 1894.—Studies on ants of the neotropical fauna, C. Emery, 4 pls. Hymenopterological notes—ii, G. Gribodo. Revision of the European species of the family of the mosquitoes (cont.), E. Ficalbi. —3-4, Feb. 15, 1895. On a species of Lac from Madagascar and the insect living within, with observations on red lac from India and its insect, and on some other lacs, etc., A. Targioni-Tozzetti, figs.

5. REVUE BIOLOGIQUE DU NORD DE LA FRANCE, vii, 4. Lille, January, 1895.—Remarks on the comparative anatomy of the last segments of the body of the Lepidoptera, Coleoptera and Hemiptera, A. Peytoureau. On the normal habitat in the stems of cereals of an accidental parasite of man, *Pediculoides tritici*, R. Moniez.

6. THE GEOLOGICAL MAGAZINE. London, March, 1895.—The Miocene insect fauna of Oeningen, Baden, S. H. Scudder, 1 pl.

7. ZOOLOGISCHER ANZEIGER. Leipsic, March 11, 1895.—On the biology and classification of the tree lice (Lachninæ Pass. partim) of the Weichsel region, A. Mordwilko.—March 25, 1895., On the knowledge of the myrmecophilous and termitophilous Arthropods, E. Wasmann. On a new parasite of mammals, G. Canestrini.

8. ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, viii, 5, February, 1895 (received March 26, 1895).—A monograph of *Scytonotus*, O. F. and A. C. Cook, 4 pls.

9. THE ENTOMOLOGIST'S RECORD. London, March 15, 1895.—Collecting Noctuidæ by Lake Erie, A. R. Grote. Notes on butterfly pupæ, with some remarks on the phylogenesis of the Rhopalocera, T. A. Chapman, M.D. Discussion on the nature of certain insect colors, J. W. Tutt. Phytophagic species, A. R. Grote.—April 1, 1895. Collecting Noctuidæ by Lake Erie, A. R. Grote. Notes on butterfly pupæ, with some remarks on the phylogenesis of the Rhopalocera (cont.), T. A. Chapman. Discussion on the nature of certain insect colors, C. R. N. Burrows, J. Anderson, Jr., R. M. Prideaux. Hybridism, A. R. Grote.

10. VERHANDLUNGEN DER K. K. ZOOL.-BOT. GESELLSCHAFT IN WIEN, 1894, xliv, 3-4, January, 1895.—Contributions to the natural history of the Meloid genus *Lytta* Fabr., K. Escherich, 4 pls., figs. Two cases of adaptation, id.

11. ANNALES DES SCIENCES NATURELLES. ZOOLOGIE, xix, 2-3. Paris, 1895.—Glandular apparatus of the Hymenoptera (cont.), L. Bordas, 4 pls.

12. DIE NONNENRAUPE UND IHRE BAKTERIEN von Dr. A. Metzger und Dr. N. J. C. Müller. Berlin. Verlag von Julius Springer, 1895, 160 pp., 45 colored plates.

13. LE NATURALISTE. Paris, March 15, 1895.—The degrees of necrophilous tendency in Coleoptera, A. Acloque.

14. VERHANDLUNGEN DES NATURHISTORISCHEN VEREINS DER PREUSSISCHEN RHEINLANDE, etc. (6), i, 1. Bonn, 1894.—*Formica exsecta* Nyl. and its nest fellows, E. Wasmann.

15. OCCASIONAL PAPERS OF THE NATURAL HISTORY SOCIETY OF WISCONSIN, ii, 3. Milwaukee, 1895 (received April 2, 1895).—Spiders of the *Homalattus* group of the family Attidæ, G. W. and E. G. Peckham, 2 pls.

16. THE FAUNA OF BRITISH INDIA, including Ceylon and Burma. Published under the authority of the Secretary of State for India in Council. Edited by W. T. Blandford. MOTHS—vol. iii by G. F. Hampson. London: Taylor and Francis, 1895, pp. xxviii, 546; 223 figs. Treats of the Noctuid subfamilies Focillinæ and Deltoidinæ.

17. BIOLOGIA CENTRALI-AMERICANA, pt. cxx. London, January, 1895 (received April 2, 1895).—Coleoptera: vol. ii, pt. 1, pp. 489-496, D. Sharp (Colydiidæ); vol. iii, pt. i, pp. 297-312, pls. xi, xii, G. C. Champion (Sericornia). Hymenoptera: vol. ii, pp. 329-344, pl. xiv, P. Cameron (Mutillidæ). Lepidoptera-Rhopalocera: vol. ii, pl. lxxxiv, F. D. Godman and O. Salvin (Hesperidæ). Rhynchota-Homoptera, vol. ii, pp. 57-72, W. W. Fowler.

18. PSYCHE. Cambridge, Mass., April, 1895.—A comparison of *Colias hecla* with *C. meadii* and *C. elis*, T. E. Bean. Western Pediciæ, Bittacomorphæ and Trichoceræ, C. R. Osten Sacken. Failure to emerge of *Actias luna*, C. G. Soule.

19. PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, iii, 3 (issued March 28, 1895).—The oviposition of *Melitara prodenialis* Walker, H. G. Hubbard, figs. Notes on Melsheimer's catalogue of the Coleoptera of Pennsylvania, E. A. Schwarz. Further note on the structure of the ovipositor in Hymenoptera, C. L. Marlatt, fig. Description of the pine-cone-inhabiting Scolytid, E. A. Schwarz. Notes on the habits of certain Mycetophilids, with descriptions of *Epidapus scabiei* sp. nov., A. D. Hopkins, figs. A review of the work of the Entomological Society

of Washington during the first ten years of its existence, L. O. Howard. Additional observations on the habits of *Ammophila gryphus* Sm., T. Pergande. On the food habits of *Odynerus*, C. L. Marlatt. Notes on the genus *Liopteron* Perty, W. H. Ashmead. The phylogeny of Hemiptera, H. Osborn. On gossamer spiders' web, L. O. Howard.

20. INSECT LIFE, vii, 4. Washington, March, 1895.—Further notes on the San José scale, L. O. Howard, fig. Report on the Mexican cotton-boll weevil in Texas, C. H. T. Townsend, figs., map, The cotton or melon plant-louse, T. Pergande. The cotton worm question in 1894, E. A. Schwarz. Notes on cotton insects found in Mississippi (cont.), W. H. Ashmead. On the distribution of certain imported beetles, F. H. Chittenden. Injurious insects and commerce, L. O. Howard. Is *Cyrtoneura cæsia* an injurious insect?, D. W. Coquillett, figs. Insect fertilization of an aroid plant, H. G. Hubbard, figs. Notes and observations on the twig girdler (*Oncideres cingulata* Say), T. H. Scheffer. A cecidomyiid that lives on poison oak, D. W. Coquillett. A migration of cockroaches, L. O. Howard. The potato bud weevil, F. H. Chittenden. An ortalid fly injuring cereals, figs. The gray hair streak butterfly and its damage to beans, figs. General notes.

21. NATURE. London, March 28, 1895.—Orb-weaving spiders of the United States, O. P. Cambridge.

22. ANALES DE LA SOCIEDAD CIENTIFICA ARGENTINA, xxxviii, 5-6. Buenos Aires, November-December, 1894 (received April 9, 1895).—Flowers and insects, A. Gallardo.

23. JOURNAL OF THE NEW YORK MICROSCOPICAL SOCIETY, xi, 2, April, 1895.—Notes on the seventeen-year Cicada, E. G. Love, 1 pl.

24. KNOWLEDGE. London, April 1, 1895.—Winter life of insects, E. A. Butler, figs. The house spider in captivity, H. D. Nicholson.

25. ABHANDLUNGEN AUS DEM GEBIETE DER NATURWISSENSCHAFTEN HERAUSGEGEBEN VOM NATURWISSENSCHAFTLICHEN VEREIN IN HAMBURG, xiii, 1895.—Revision of the Tarantulidæ Fabr. (Phrynidæ Latr.), K. Kraepelin.

26. THE AMERICAN NATURALIST. Philadelphia, April, 1895.—Two more new species of *Lecanium*, T. D. A. Cockerell. A new Trombidian, J. L. Hancock, 1 pl.

27. ENTOMOLOGISCHE NACHRICHTEN, xxi, 5-6. Berlin, March, 1895.—Catalogue of the European bees, Dr. v. Dalla-Torre and H. Friese. On my new Muscid system, E. Girschner.

28. CATALOGUE GENERAL DES HEMIPTERES par L. Lethierry et G. Severin. Tome ii, Hétéropteres: Coreidæ, Berytidæ, Lygæidæ, Pyrrhocoridæ. Bruxelles, 1894, 277 pp. (including index), Tome i, 286 pp., containing the Pentatomidæ, is dated 1893.

29. THE CANADIAN ENTOMOLOGIST. London, Ont., April, 1895.—Variation in *Nemeophila petrosa* at Laggan in western Alberta, T. E. Bean. *Preptos*, *Tamphana* and *Arotros*, W. Schaus. *Thecla ontario* Edw., J. Fletcher. On the term Cydosiinæ, A. R. Grote. Some new Attidæ, N. Banks. Synopsis of the Dipterous genus *Phora*, D. W. Coquillett. Preparatory stages of *Euclidia cuspidea* Hübn., J. B. Lembert. Preliminary studies in Siphonaptera—iii, C. F. Baker. Mounting insects without pressure, R. W. Rennie.

30. THE ENTOMOLOGIST. London, April, 1895.—Life-history of *Ornithoptera richmondii*, H. Schneider, figs. Ants and their companions, C. W. Dale. Three new species of Coccidæ, T. D. A. Cockerell. On the causes of variation and aberration in the imago state of butterflies, with suggestions on the establishment of new species, Dr. M. Standfuss. Notes on the synonymy of Noctuid moths, A. G. Butler. Aberrations in the structure of appendages in the Coleoptera, T. H. Garbowski, D. Sharp, figs.

31. PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES (2), IV (extract). San Francisco, Feb. 19, 1895 (received April 5).—The Odonata of Baja California, Mexico, P. P. Calvert, 3 pls.

32. BULLETIN 109. New Jersey Agricultural College Experiment Station. Rutgers College [New Brunswick,] N. J., Feb. 28, 1895.—Cut worms, The sinuate pear borer, The potato stalk-borer, Bisulphide of carbon as an insecticide, J. B. Smith, figs.

33. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, XXXIX, 3. Brussels, March 30, 1895.—List of Trixagidæ, Monommidæ, Eucnemidæ and Elateridæ, imported in tobacco and collected by M. Ant. Grouvelle, E. Fletiaux.

34. JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY, iii, 1, March, 1895 (received April 8, 1895.—Notes on the Pseudoscorpionida, N. Banks. New North American Tettiginæ, A. P. Morse. A combination of two classifications of Lepidoptera, H. G. Dyar. Life-history of *Heterocampa obliqua* Pack., A. S. Packard, 1 pl. A clew to the origin of the Geometrid moths, id. Domed burrows of *Cicada septendecim*, B. Lander. The Odonata of New York State, P. P. Calvert.

35. THE ENTOMOLOGIST'S MONTHLY MAGAZINE. London, April, 1895.—Coccids preyed upon by birds, R. Newstead. Are the antennæ of the pupa free in the family Tineidæ?, T. A. Chapman. The genera *Cryptohypnus* and *Hypnoidus*, G. C. Champion.

36. DEUTSCHE ENTOMOLOGISCHE ZEITSCHRIFT, 1895, 1. Berlin, February, 1895.—Response to Verhoeff's reply on the copulatory apparatus of male Coleoptera, J. Weise. Two new Cryptocephaline genera, id. On the copulatory apparatus of male Coleoptera, C. Verhoeff, 3 figs.

37. A MANUAL FOR THE STUDY OF INSECTS by John Henry Comstock, Professor of Entomology in Cornell University and in Leland Stanford Junior University, and Anna Botsford Comstock, Member of the Society of American Wood-engravers. Ithaca, N. Y. Comstock Publishing Company, 1895, pp. xi, 701; 797 figures in the text, six plates (plate i, the frontispiece, colored). 8 vo.

The appearance of a work of this size and kind by an author of reputation is always an important event. Those who knew not of the intended publication of the present volume were probably surprised, as we were, to find that Prof. Comstock has here given us an entirely new book, and not a continuation of his favorably known "Introduction to Entomology" of 1888. The new Manual is designed for more elementary students than the Introduction. The latter, as far as published, embraced 252 pages, of which 52 are occupied with the general characteristics of insects, 9 with the Thysanura, 25 with Pseudoneuroptera, 36 with Orthoptera, 5 with Physopoda, 90 with Hemiptera, 17 with Neuroptera. In the Manual the number of pages devoted to the same subjects are respectively 34, 4, 16, 17, 2, 54, 16. In the Manual we have also a chapter on zoological classification and nomenclature of 8 pages, and one of 39 pages on the relatives of Insects, that is, the other Arthropods. Another feature of the book in which it differs from the Introduction is the recognition of nineteen orders of insects, due mainly to the division of the Pseudoneuroptera and Neuroptera. The groups not treated of in the Introduction are the higher orders; here the Lepidoptera occupy 222 pages, the Diptera 77, the Siphonaptera 4, the Coleoptera 105, the Hymenoptera 80.

The aim of the Manual is stated in the preface to be that of meeting a pressing demand of teachers and learners in entomology "for a handbook by means of which the names and relative affinities of insects may be determined in some such way as plants are classified by the aid of the well-known manuals of botany." Analytical keys, therefore, occupy a prominent place, although for obvious reasons it is not pretended to extend them farther than families. As may be seen from the figures given above, those orders of insects of economic importance receive, and receive intentionally, a larger share of attention, the best known species in these groups being frequently described and figured. The book is very fully illustrated, and most of the figures, especially in the latter part (see the preface), are satisfactory. Such abundant illustration is a prime requisite in a handbook of this kind. A rather unfamiliar feature in entomological text-books is the indications for pronunciation which follow the technical names. Most of the species and groups mentioned are also provided with English names.

Altogether, without discussing any of the more technical questions concerned, we are pleased with the Manual, and recommend it to those for whom it is intended, and to those who desire a brief illustrated handbook of our common insects.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

APRIL 9, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 S. 13th St. Members present: Messrs. Bland, Fox, Trescher, E. Wenzel, Hoyer, Dr. Castle, Johnson, Boerner. H. W. Wenzel and Schmitz Honorary members: Drs. John B. Smith, Geo. H. Horn and Henry Skinner. Meeting called to order at 8.50 P.M., president Bland presiding. The president, in a brief address, officially announced the death of our late member and ex-vice-president, C. Ernst Seeber, who died on March 28th, after a short illness, from pneumonia, stating that, in consequence, the regular business of the Social for the evening would be suspended. It was moved and seconded that Mr H. W. Wenzel be authorized to procure a photograph of Mr. Seeber for the Social. On motion of Prof. Smith a committee of three was appointed as follows: Mr. H. W. Wenzel, Dr. D. M. Castle and Wm. J. Fox, to draft suitable resolutions in memory of our late fellow-member, a copy of the same to be forwarded to the family of the deceased. Mr. Boerner stated that the family of Mr. Seeber desired, through him, to extend their thanks to the members of the Social for the respect they had shown for the departed, and their attendance at the funeral. The president stated, in conclusion, that out of respect to the memory of the late member, the adjournment to the annex would be omitted, and therefore declared the meeting finally adjourned.—THEO. H. SCHMITZ, *Secretary*.

BROOKLYN ENTOMOLOGICAL SOCIETY.—The monthly meeting was held in the Art Rooms, Montague Street, Brooklyn, Tuesday evening, April 2nd, ten members present; five new members were elected. After routine business Prof. J. B. Smith read a paper upon "Variation in Insects." He exhibited, and commented upon, a series of Noctuids showing very great variation in color and ornamentation, and took strong ground against giving names to any variations unless these were geographical and to the exclusion of other forms, thus following the ornithologist's code. He also observed that each species must be judged by itself, for one might vary decidedly, and yet the same variation in the same genus might cover a number of good species as shown by structural differences. A general discussion followed, and the unanimous opinion seemed to be that it is very useful, if not necessary, to have names for marked variations, whether geographical or not, especially if they exist commonly.

The officers of the Society now are:

President, Prof. J. B. SMITH.
Vice-President, EDW. L. GRAEF.
Secretary, GEO. D. HULST.
Corresponding Secretary, A. C. WEEKS.
Treasurer, C. H. ROBERTS.
Librarian, Dr. R. OTTOLENGUI.
Curator, H. MEESKE.

The meetings are on the first Tuesday of each month in the Art Building, Montague Street, Brooklyn, N. Y.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

FEBRUARY 28, 1895.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Dr. Horn mentioned various species of *Scymnus*. The differences in the secondary sexual characters were pointed out and described in both sexes and illustrated by drawings on the black-board.

Meeting held March 28th.—Dr. Horn, director, presiding. Mr. Johnson, on behalf of Prof. Aldrich, presented to the American Entomological Society, specimens of seven species of Dolichopidæ, two of which were represented by type specimens. Mr. Johnson presented a type of a new species of *Odontomyia*. Mr. Johnson said, that in the preparation of certain illustrations of Diptera he had prepared, he had experimented somewhat in making the plates. The specimens were photographed and the figures "touched-up" with China-white and India-ink, in order to strengthen the light and dark spots. Good results had accrued from this process, as was indicated by two half-tone plates exhibited. Mr. Laurent reported the capture of a specimen of *Tenebriodes bimaculatus* at Germantown. He announced to the Section the death of Mr. C. E. Seeber. The deaths of Drs. Ruschenberger and Ryder, members of the Academy were announced by the director, who reviewed the early work of the former, principally the issuing of a science primer, which the speaker had known to be the direct means of interesting more than one person in the study of natural history; in fact, gave the speaker his first insight into Entomology. Dr. Ryder's work in Biology was also praised. Mr. Frank Haimbach was unanimously elected a member of the Section. A fine crayon portrait of the late John L. LeConte, recently acquired by the American Entomological Society, was exhibited to the members.—WM. FOX, *Recorder pro. tem.*

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

TWO NEW AFRICAN LYCÆNIDS.

By W. J. HOLLAND, Ph.D , F. Z. S., F. E. S., etc.
Chancellor of the Western University of Pennsylvania.

MIMACRÆA, Butl.

M. neurata sp. nov. ♂.—Allied to *M. charmian* Kirby and Smith. The primaries and secondaries are narrower than in *M. charmian*. The inner margin of the primaries is straight. The primaries are dark brown with a narrow band of Orange-red, composed of four spots located beyond the

end of the cell somewhat more than half-way from the base to the apex. Of these spots, the uppermost is minute; the two next succeeding it inwardly are quadrate; and the fourth located between veins four and five is subtriangular, produced beyond the others externally, and retracted toward the cell. Below this band toward the inner margin is a broad subtriangular patch of orange-red, bounded above by the lower edge of the cell, and reaching to the inner margin. This light colored area is subdivided by the blackish veins. The secondaries are fuscous on the costa with the outer half-broadly fuscous, the inner half orange-red. The veins are blackish. On the underside, the primaries have the costa, the cell, and the part immediately adjacent thereto about the origin of the nervules blackish. At the end of the cell, there is a deep black spot, surrounded by a paler brownish cloud. The yellow markings on the upper surface reappear upon the lowerside, but are paler and less distinctly defined. The outer third is gray with the nervules whitish. On the interspaces upon the nervules, there are two whitish lines, which, running inwardly from the margin, converge at the outer margin of the orange-red and triangular inner tract. The secondaries have the outer third marked in the same way as the primaries. There is a pale creamy-yellow median bend running from near the costa to the inner margin, widening toward the inner margin, and obscurely defined both inwardly and outwardly. The basal third is pale Mars-red, marked with black spots, one at the base, one on the middle, and another at the end of the cell, and a fourth just beyond the end of the cell. Above the cell are two black spots and below the cell at either side of the origin of vein three are two smaller spots. On interval 1b are two geminate spots, the first below the spot in the middle of the cell, the two together forming a series with the two spots lying at the origin of vein three. There are a few indistinct, blackish markings near the costa on the inner side of the pale median band. The head, collar and thorax are black above and below, spotted with white. The abdomen is ochreous above and below touched with blackish on the upperside on the median line near the prothorax. Expanse 60 mm.

Hab.—Liberia (Good). This very distinct species may be distinguished at a glance from all others in the genus. I have named it *neurata* on account of the characteristic manner in which the bright tracts on the upper surface are divided by the black veins.

TERIOMIMA Kirby.

T. galenides sp. nov. ♂.—The anterior wings are quite black with a small orange spot on the cell. Beyond the cell near the costa are two larger spots, one above each other, of which the one nearest the costa is the smaller, and the lower one is produced outwardly. There are three orange spots located on the disc in immediate contact with each other; the middle spot located between veins two and three is oblong, longitudal; the two other spots are small and transverse. The three form a figure resembling the plus mark, +. There is an orange spot near the

inner margin, half-way from the base; the secondaries are black, like the primaries, and are traversed from just before the outer angle by a broad orange band, which diminishes regularly to the inner margin. on which it terminates; the fringes are narrowly white interrupted with blackish. On the underside the primaries are dark fuscous, with the inner margin obscure stramineous; the spots of the upperside reappear, and, in addition, there are a number of minute yellowish spots upon the costal and outer margins, and two or three sabapical spots; there are also some small spots upon the cell, both before and behind the central orange spot, which appears upon the upper surface. The ground color of the secondaries is as that of the primaries; the broad orange band of the upper surface is reduced and does not extend to the inner margin, as on the upperside, and is much indented externally; there are nine or ten small orange spots on the basal third, a relatively large orange spot on the costa near the middle, and a marginal and anal series of yellow spots of varying size, those of the marginal series, near the outer angle being the largest. The fringes on the underside are narrowly white, broadly interrupted with blackish at the end of the nervules. The antennæ are black annulated with white on the lowerside. The upperside of the body is black, the lowerside fuscous. The legs are black, with the tarsi annulated with whitish. Expanse 27 mm.

Hab.—Bulé Country, Cameroons (Good). I have named this curiously marked species, which is totally unlike any other in the genus, because of its somewhat mimetic likeness to the Hesperidæ of the Galenus group. The only species which at all resembles it is *T. adelgunda* Kirby. The type is unique.

———o———

ON THE LARVÆ OF HYDROCHARIS OBTUSATUS AND SILPHA SURINAMENSIS.

By H. F. WICKHAM, Iowa City, Iowa.

The larvæ of the two above-mentioned species were obtained during a Summer trip to Bayfield, Wis., on the shores of Lake Superior. As neither are fully described as yet, notes and figures are appended.

Hydrocharis obtusatus Say, fig. 1.—Color of larva, above greenish, head and prothorax chestnut, beneath lighter. form moderately elongate, not very convex, broadest at about the middle of the abdomen. Length of full-grown living specimen, 28 mm.

Head narrower than the prothorax, sides rounded, more strongly near the base, front impressed each side, elevated at middle, these elevations and impressions extending also to the vertex, occiput with two triangular impressions at the base. Frontal margin obtusely lobed at middle.

Underside of head smooth and shining, with two foveæ at the base of the mentum, and, immediately posterior to these, a somewhat reniform impression. There are also four large mottled lanceolate figures extending from the base for more than one-half of the entire length. The plane of the head is oblique to that of the prothorax. Eyes consist of six somewhat elongate ocelli on each side of the head. Antennæ situated behind the base of the mandibles, on the front, 3-jointed, the basal joint very long, bristly internally, the second and third much shorter and more slender, approximately equaling each other in length. Mandibles curved furnished with a very strong internal distal tooth and a much smaller proximal one. Maxillæ with a very long basal joint swollen at each end, second joint shorter and with an internal distal appendix, third joint again shorter, fourth not quite equal to the second, but about the same as the fifth. There are no bristles whatever to be seen, even under high powers. Mentum irregularly hexagonal, the apex with two distinct lateral teeth, sides with smaller serrations; palpiger elongate, broader near the tip, palpi two-jointed the second joint much the longer. Prothorax narrower at apex which is truncate, base rounded, sides narrowly margined, a transverse impressed line at apex, another (obsolete at middle) at the base, disc shining, surface unequal. Beneath, the sternal piece, anterior to the coxæ, is more perfectly chitinized and smoother than the remainder of the under surface. Mesothorax shorter than the prothorax and wider, roughly shagreened, not shining, two triangular smooth spaces at base, each with a large fovea. Spiracle on the ventral surface near the anterior angles. Metathorax similar in shape, shagreened, without the smooth triangular areas or spiracles. Abdominal rings resembling in dorsal aspect the metathorax; there are two dorso-lateral rows of blunt spines on each side and a row of lateral filamentary appendages, each tipped with two bristles, the last segment is corneous at tip and distinctly toothed or serrate. Legs with conical coxæ, which are as long as the femora, trochanters well marked by sutures; tibiæ shorter than the femora, claws long, slightly curved and provided with a strong spine near the middle of the length.

From the larvæ of *Tropisternus glaber*, which I have elsewhere* described the present species, differs in its greater size truncated thorax, shape of mentum and spined claw, besides in other minor characters. The specimens were found on the margins of muddy ponds and form cells in the damp ground by squirming motions of the body. In this cell they remain for some days before attaining the pupa state, which lasts six or seven days. One of mine pupated on the 16th of July, and the beetle appeared on the 16th. The pupa is sixteen mm. in length, clear greenish in color, becoming brownish about the head and limbs as matu-

* Bull. Lab. Nat. Hist. State Univ. of Iowa, II, p. 338.

rity approaches. The figure will obviate the necessity for a long description, the striking points, to which attention should be directed, being found in the long palpi, the strong bristles and the appendages of the terminal abdominal segment.

Silpha surinamensis Fabr. fig. 2.—Color of larva nearly black above, a light yellowish dorsal line, interrupted at the posterior margin of each segment, extending almost the entire length; the sides of the thorax and abdomen are also bordered with the same color. Beneath yellowish with a few brown markings. The form is elongate, tapering behind, moderately convex, last abdominal segment with two straight appendages. Length, in spirits, 19 mm. Head broader at base, sides rounded, front sinuate laterally and emarginate at middle, surface of head rough with large punctures and unequally impressed. Eyes six on each side of the head, a group of four being situated on the dorso-lateral surface behind each of the anntennæ and very close to the thoracic margin, the other pair is on the ventro-lateral surface somewhat anterior to the group mentioned. They are of fairly large size. Antennæ inserted near the sides of the head, immediately anterior to the large group of eyes, the basal joint (?) or support of scarcely appreciable length, the others of good size, somewhat bristly and decreasing in length and thickness to the last, which is tipped with a short spine and a few very minute aciculi. Mandibles moderately strong, sinuate on the outer edge, apex acute, internal edge with a tooth near the tip and sinuate. Maxillæ with a broad inner lobe, the inner margin with a series of ten articulated spines on the apical half and a brush of bristles near the base, tip with a much larger brush of bristles which extend also for some distance down the outer margin. This margin is armed with two long stout bristles. Palpus four-jointed, borne on a swollen base, the first joint short and thick, the three following more elongate and subequal in length among themselves, the last being, however, more slender and bearing a few aciculi at apex. Mentum somewhat obcordate in form, broader before the free end which is sinuate at sides and deeply emarginate at middle, the palpi heavy, two-jointed, the basal joint much the larger, the apical with a few aciculi at tip. The body of the mentum is furnished with short bristles distributed in close array over a pattern shown in the figure. Prothorax broader towards the base, sides somewhat rounded and very slightly sinuate, apex less rounded, angles not marked, side margined, disc with a fine longitudinal median line, surface irregularly rugose. Meso- and metathorax shorter, sides rounded anteriorly and with a subangulation behind the middle, surface finely transversely rugose. Abdomen with fine grayish or whitish hairs on the dorsum and composed of nine true segments and a proleg. The first eight segments have a well-marked thin margin, which is rounded anteriorly and acute posteriorly; on the ninth segment this margin is less evident, though present. These marginal pieces are all finely bristled externally and more coarsely at the posterior angles. The appendages which are borne on the ninth segment are straight, two-jointed and spiny,

the first joint long but heavy, the second short and more slender, tipped with a long bristle. Legs stout, the coxæ prominent, trochanters separated from femora by a distinct suture, tibiæ tapering to tip, claws slightly curved and with a strong spine before the middle. Spiracles in nine pairs, the first situated under the posterior prothoracic angles the remainder in segments 1–8 of the abdomen, gradually receding from the anterior ventral margins as we proceed backwards.

This larva differs in many important particulars from that of *Silpha ramosa* which Mr. C. F. Gisslar has described in the "American Entomologist," Vol. iii, pp. 265–267. In *S. surinamensis* the third antennal joint shorter than the first while in *S ramosa* it is much longer. In *surinamensis* the mandible has a tooth internally, the first joint of the labial palpi is the larger and the claws have a single spine on the lower surface, while in *ramosa* the mandible is without molars, the joints of the labial palpi are of equal length and the claws are said to have two spines at middle. The pygidial appendages are also different. A full knowledge of the larvæ of our American Silphæ is much to be desired, as likely to throw light on the real value of the divisions proposed in the genus as now understood in this country. Two of these larvæ were obtained on the 20th of June, one of them in its cell beneath an old log, ready for pupation, the other crawling on moss. The first-mentioned specimen disclosed the beetle on the 3rd of July. The pupa is very sensitive to touch and wriggles vigorously at the least disturbance. It is remarkable for the serrate thoracic margin, the prominent hind legs and slender abdomen with its long lateral bristles and crooked terminal appendages. The length is 18 mm., the color white.

EXPLANATION OF PLATE.

Fig. 1.—*Hydrocharis obtusatus* Say. larva: *p*. pupa; *a*, antenna; *l*, leg; *md*, mandible; *mt*, mentum; *mx*, maxilla; *h*, head, under surface.

Fig. 2.—*Silpha surinamensis* Fabr., larva: *ab*, ninth abdominal segment with appendages (under pressure). The other lettering is the same as in fig. 1.

The larvæ of *Tenebrio molitor*, commonly called Meal-worms, which are found in carious wood, are bred by bird fanciers to feed nightingales, and constitute the only bait by which these shy birds can be taken; a fact the more curious when it is considered that the nightingale, in a state of nature, can seldom or never see these larvæ. They are also used to feed chameleons which are exhibited.—*Cuvier Anim. Kingd. Ins.* i, 569.

OBITUARY.

OLIVER JACOB STALEY, of Marshall, Saline County, Mo., died July 6, 1894, while on a collecting trip near home. His body was found by searching parties in a creek, face downward. A sultry day induced him to take a bath, with fatal result. Mr. Staley was born in Princetown, Schenectady County, N. Y., and removed with his parents to Marshall, Mo., thirteen years ago. He practiced law for about four years, and was in the twenty-fifth year of his age. He was a member of the Y. M. C. A. and was much respected by everybody. He published "A List of the Butterflies found at Marshall, Missouri, and Vicinity." From childhood up he had a fondness for Lepidoptera, but his active work occupied the last six years of his life (the death of Mr. Staley was mentioned in the NEWS, vol. v, p. 236).

CHARLES W. STROMBERG died at his home in Galesburg, Ill., on March 26 (1895), after a lingering illness of consumption. Mr. Stromberg went to to Phœnix, Ariz., over a year ago, with the hope that he would recover his health. He returned last Fall, the change not having benefited him to the extent expected. Mr. Stromberg was born in Sweden, in 1856, and came with his parents to this country twenty-nine years ago. From boyhood he was devoted to scientific studies, and of late years Entomology has been his favorite study, and he had obtained recognition as an excellent student in that branch of natural history. He had amassed a fine collection of the insects of his State; his collection of Coleoptera being especially complete. Mr. Stromberg was quiet and reserved, and gentlemanly in disposition, and was naturally refined in his tastes. He will be greatly missed by his entomological associates and correspondents.

C. ERNEST SEEBER, aged sixty-one, died March 28, 1895. He was a well-known Philadelphia entomologist, and one of the early members of the American Entomological Society, and was lately vice-president of the Feldman Collecting Social.

PAUSANIAS tells us, that in the temple of Parthenon there was a brazen statue of Apollo, by the hand of Phidias, which was called Parnopius, out of gratitude for that god having once banished from that country the Locusts, which greatly injured the land. The same author asserts that he himself has known the Locusts to have been thrice destroyed by Apollo in the Mountain Lipylus, once exterminating them by a violent wind; at another time by vehement heat; and the third time by unexpected cold. *Cowan's Curious Facts.*

ENTOMOLOGICAL NEWS for April, was mailed March 29, 1895.

C. ERNST SEEBER.

See page 195.

Fig. 1.

Fig. 2.

J.L.Hancock, Del.

A MITE-LARVA PARASITIC ON TETTIX GRANULATUS

See page 180.

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AND

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BIOLOGICAL NOTES ON SOME COLORADO DIPTERA*

By CARL F. BAKER, Fort Collins, Colo.

The Diptera mentioned in the following notes were determined either through Dr. Riley, or by Mr. C. H. T. Townsend.

Cecidomyia siliqua Walsh.—Galls identical with those of this species brought from Michigan; are common about Fort Collins on *Salix amygdaloides*..

Cecidomyia alticola Cockerell.—A gall was found at Fort Collins on *Artemisia dracunculoides*, which answers the description of the gall of this species (see The Entomologist, 1890, p. 281).

Subula pallipes Lw.—Large numbers of the larvæ of this species were obtained by Prof. Gillette, at Trinidad, under the bark of a fallen cottonwood log. The flies emerged 5-21 to 6-9. A description of the larva and pupa has been published by Mr. Townsend.

Argyra mœba œdipus Fab.—Reared from nests of several species of *Odynerus* at Fort Collins. In the larval stage it is a true external parasite. Flies emerged 5-3 to 6-12.

Eristalis hirtus Lw.—Reared from maggots found in ooze

* From the seventh bi-monthly report of the Say Memorial Chapter of the A. A.

about the mouth of a drain at Fort Collins. Flies emerged from 4–11 to 5–3.

Jurinia apicifera Wlk.—This is one of many parasites which help to reduce the numbers of *Clisiocampa fragilis*, the larvæ of which are so enormously abundant on quaking ash and *Cercocarpa* in various parts of Colorado. From material brought from Georgetown, by Prof. Gillette, numerous flies emerged from 7–30 to 8–2.

Masicera eufitchiæ Twns.—A common parasite on *Thamnonoma flavicaria* and *T. 4-linearia* at Fort Collins. Flies emerged 7–15 and after.

Hyphantrophaga hyphantriæ Twns.—A single specimen was reared from *Vanessa milbertii* at Fort Collins, the fly emerging 7–19.

Tachina clisiocampæ Twns.—Reared from *Clisiocampa fragilis* with *Jurinia apicifera*. Flies emerged from 7–24 to 8–4.

Cyrtoneura stabulans Fab.—At Fort Collins in squash roots rotting from the attacks of *Anasa tristis*; maggots of this fly were found in abundance. Puparia taken from the earth adjoining the roots gave flies from 7–29 to 8–23.

Oestrus ovis L.—A number of sheep on the college farm died last year from the attacks of this fly. After death occurred, blood and mucous oozed from the nasal cavities and softened the adjoining earth, otherwise the maggots would have been unable to bore down. Maggots taken from the blood moistened earth and placed in a breeding cage, gave flies about six weeks after.

Trypeta canadensis Lw.—A very common gooseberry pest in the vicinity of Fort Collins. Infested berries were gathered during the Fall, the maggots passing from them into the earth. The next Spring numerous flies emerged on 4–30.

Trypeta bigelovii Cockerell.—Galls were found abundant on *Bigelovia*, at Dolores, by Prof. Gillette. Flies emerged 6–29.

Trypeta solidaginis Fitch.—The galls of this fly are very common on *Solidago canadensis* in the vicinity of Fort Collins. Flies emerged from 5–7 to 5–23. A single *Eurytoma gigantea* Walsh (determined by Mr. Ashmead) was also obtained from the galls.

The above are a few out of a considerable number of flies reared in Colorado, for the greater part of which it has been impossible to obtain names.

THE MAGNOLIA-BLOSSOM TORTRICID.

Cacœcia magnoliana Fernald.

By M. V. SLINGERLAND, Cornell University, Ithaca, N. Y.

In June, 1891, Prof. W. W. Rowlee, of the Botanical Department, discovered that many of the blossoms on a cucumber-tree (*Magnolia acuminata*) not far from the campus were being destroyed by a caterpillar; he had previously observed that this tree seldom fruited fully. Several of the infested blossoms were brought to the insectary, placed in cages, and the adult insect reared. Dr. Fernald decided that it was a new species, and he soon described the moth (See "Canadian Entomologist," xxiv, p. 122). The half-tone illustration of the moth here given (natural size) will facilitate the determination of the species from Dr. Fernald's careful description.

The caterpillars fed ravenously for several days after they were put in the cages. They attacked all parts of the flower, but more especially the petals, which they bored through and through as shown by the holes in the blossom (natural size) in the illustration. The large thick petals were tied together by numerous silken cords and the caterpillars reveled within; usually from one to three worms occupied a blossom.

By June 8, most of the caterpillars had become full grown. They were then of a light semi-transparent green color, lighter on the venter. Length, 20 mm. Head, considerably narrower than the body and light brown in color with black spots caudad of the black eye-spots. Thoracic shield greenish black, darker on the sides. Two black spots occur on the sides of the first thoracic segment between the shield and the blackish legs. The other four true legs and the five pairs of pro-legs are nearly like the body in color. The body is sparsely clothed with long whitish hairs arising from slight whitish elevations. The head

and thoracic shield of a smaller specimen were of a dark brownish black color.

One larva pupated in a thin white silken cocoon attached to one of the petals; this is probably the normal place of pupation. Other larvæ pupated on the glass sides of the cage, or on the muslin cover. All had pupated by June 10.

When first formed the pupæ are of a light green color. They gradually change to a dark brown color, lighter on the venter. Length, 14 mm. Two transverse rows of minute spines project caudad on the dorsum of each abdominal segment. The body is sparsely clothed with long white hairs arranged similar to those on the larvæ. The pupa firmly attaches itself to the cocoon by eight strong hooklets, two arising from each side of the long narrow cremaster and four from its end. The pupal stage lasts from ten to fifteen days.

Most of the moths had appeared by June 22; none emerged after June 25. Probably eggs are soon laid, and the young larvæ work on the leaves, perhaps becoming half grown by Fall, when they go into hibernation in inconspicuous hibernacula on the branches near the blossom buds. But, possibly the moths hibernate and lay their eggs on the blossom buds in the Spring; or, perhaps the insect passes the Winter in the egg.

Hundreds of Magnolia blossoms were destroyed by this Tortricid in 1891. No observations have since been made on its habits and life-history. Upon receipt of my bred specimens of the moths, Dr. Fernald wrote that he had then had the insect in his collection for nearly fifteen years.

———o———

On Cicindela formosa and C. venusta, with remarks on some sexual characters of the genus.

By H. C. FALL.

Among a small lot of Coleoptera recently received from Mr. W. Knaus, of McPherson, Kans., were several examples each of the two beautiful tiger beetles *Cicindela formosa* and its so-called variety *venusta*. On placing the fresh specimens in my cabinet and surveying the two series, the difference in facies struck me as being something unusual, even in this genus of variable species. A subsequent somewhat careful investigation

leads me to believe that we really have to do with two entirely distinct species. In his synopsis of the *Cicindelidæ*, Schaupp merely says, in speaking of *venusta*, "differs (from *formosa*) in being more slender and convex." In the table of species the middle band is mentioned as being more perpendicular and the size is given for *formosa* 17–18 mm., for *venusta* 13–15 mm.

Here, then, we have noted a difference in form, size and markings; let us consider their value as indicating specific distinction. The latter is certainly of least importance, and of itself would signify nothing; it may then be dismissed with the remark that in all the specimens examined there is a small, yet constant difference in this respect. Size also is usually of little or no consequence, and yet among all our varieties of *Cicindela* there are nowhere else any appreciable variations of size within specific limits, with the single exception of *dorsalis* and its variety *saulcyi*, and these are almost perfectly connected by *media*. The difference in form seems to me of more importance, and indeed has no parallel among our species. *Formosa* is not only always larger, it is also invariable stouter than *venusta*. A careful measurement shows that the average ratio of length to width of elytra is in *formosa* 100–66⅔, and in *venusta* 100–60. The adjacent extremes are well separated, in fact there seems to be very little variation in either case from the above averages. While, then, we might not safely lay much stress on either of the above differences by itself, their invariable association adds greatly to the significance of each, and forms a mass of presumtive evidence, which, in the absence of any positive proof to the contrary, would ordinarily be considered conclusive. Fortunately, however, we need not stop here. In the form of the labrum we have another means of separation. In *venusta* this organ is more strongly produced in front and more feebly toothed. The difference is entirely independent of sex, and while not very great, the practiced eye could accurately place every specimen by an examination of it alone.

Finally, in the emargination of the sixth ventral of the male we have a character of the greatest importance. Every student recognizes the exceptional value of secondary sexual characters —their invariability rendering them when present of the utmost service in separating closely allied species. In the males of *formosa* and *generosa* the sixth ventral is broadly, feebly, trian-

gularly emarginate, while in *venusta* the emargination is deeper and narrowly oval.

Since *formosa* and *venusta* inhabit the same region, and have in fact for several years been taken together by Mr. Knaus, it is reasonable to suppose that if they are merely varieties of one species, intermediate forms would occasionally occur. A letter of inquiry addressed to Mr. Knaus concerning this and some other points, brings an interesting reply, a part of which I quote below.

"I have quite a large series of duplicates of both *formosa* and *venusta* and there is no trouble in separating them. *Formosa* is uniformly more robust—there is quite a variation in the width of the markings, but the middle band is always shorter and less bent downward than in *venusta*. The humeral lunule in *venusta* is also invariably less bent and extends further back than in *formosa*, sometimes almost uniting at the tip with the middle band. I have never seen the two *in coitu*, but have frequently thus taken *venusta*. *Formosa* is stronger in flight, and, if anything, more wary than *venusta*. I have really no evidence that *formosa* and *venusta* intergrade. I have been inclined to the belief for some time that they were distinct species."

The above remarks are certainly confirmatory of my conclusions, and I would only say in dismissing the subject that if any one possesses examples which can fairly be considered intermediate, or any facts which indicate specific identity, I would hold it a personal favor to be informed of them.

Having in the foregoing investigation been incidentally led to make some comparative study of secondary sexual characters, I am prompted to add one or two remarks in this connection. The male characters which have been given as common to all the species of the genus are "Three joints of anterior tarsi dilated with short silken pubescence beneath, sixth ventral segment broadly emarginate, middle tibiæ pubescent on the outer side—(except *pilatei* and *belfragei*)." The degree of emargination of the sixth ventral, while practically constant within specific limits, varies greatly in different species. It appears to reach its greatest development in *circumpicta* and *togata*, where it extends nearly two thirds the length of the segment, and from this extreme it gradually decreases, until in *cuprascens*, *puritana* and *macra*, it becomes exceedingly feeble, or entirely wanting. I

hirticollis, *repanda* and its varieties, and less conspicuously in *limbata*, the emargination lies not upon the median line of the body, but noticeably to the left. A somewhat similar sexual asymmetrical modification of the last ventral has been recorded in the Pselaphide genus *Sonoma* (*Faronus*), and in the Staphylinide genus *Palaminus*, but so far as I know the peculiarity is common to all species of these genera. It therefore seems very remarkable that so aberrant a structure should affect this small number of species in the very midst—as it were—of a homogeneous genus.

The last of three above named sexual characters—males with the intermediate tibiæ externally pubescent—females glabrous, I can not all appreciate. The difference seems to me to be merely comparative, at least I have not yet found a specimen which does not show this pubescence, and while it is usually more conspicuous in the males, in not a few cases the difference is so slight as to be barely perceptible.

A character which in very many species possesses a positive value, and to which I do not remember to have seen any allusion, exists in the extent of the pubescence which clothes the sides of the abdominal segments. In the males of most species the pubescence is always of nearly equal density on all the segments, while in the females the last segment is either entirely glabrous, or with at most a few hairs at the base. *Dorsalis*, *puritana*, *lepida*, *gabbii*, *togata*, *scutellaris*, *tenuisignata* and *sigmoidea* among others well illustrate this point. In some species (*rectilatera*, *circumpicta*) the pubescence ends abruptly with the fourth segment, and occasionally (*vulgaris*, *abdominalis*) the last three segments are unclothed. It is worthy of mention that the females of the western varieties of *repanda* (*oregona* and *guttifera*) entirely lack the pubescence at the sides of the abdominal segments; at least this is true in the fairly good series which I possess, and will, I suspect, prove characteristic.

In the Deutsche Ent. Zeits. 1895, p. 58, Mr. J. Weise suggests the new generic name *Fabricianus* for our *Cryptocephalus auratus*. In 1880 (Trans. Am. Ent. Soc. viii, p. 196), Dr LeConte suggests the name *Diachus* for the same species and six others. In the Biologia i, p. 149, Mr. Bates describes a *Bembidium lucidum* as a new species. The same was described by Dr. LeConte under the same name in 1848, Ann. Lyc. iv, p. 466.—G. H. Horn.

A MITE-LARVA PARASITIC ON TETTIX GRANULATUS.

By JOSEPH L. HANCOCK.

An interesting and as yet unidentified microscopical larva of a mite that I discovered on the pronotum of a small locust, *Tettix granulatus*, is here presented.* The accompanying drawings, Plate viii, figs. 1 and 2, illustrate this better than a word description, though some of the characters are especially noteworthy. *Description*—Hexapodal larva, length of body (to end of rostrum.) 18 mm. width .25 mm.; yellowish with blackish hairs. Abdomen oblong, clothed above with numerous short feathery hairs distributed below and above as shown in figs. 1 and 2 of Plate. The head is flattened, pyramidal, produced into a blunt pointed rostrum, the latter curved downwards and slightly dilated toward the end. A slender hair is inserted on the underside of the rostrum near the tip, on each side, a short distance from the middle line. The palpi are strong, thickened at the base, two-jointed, with an extra thumb process at the end, which is armed with two curved claws and a few short, stiff hairs, on the outerside of the thumb and the two main joints of palpi a single feathered hair grows from each, the one on the first joint being long and particularly noticeable. The legs are long, rather slender, of nearly equal length, composed of six articles, the tarsus of each leg ending in a pair of delicate hooks. Realizing the burden to science that a multiplying of scientific names incurs I have refrained from suggesting a name for this larva, as many have previously done when describing undetermined larval forms of mites.

EXPLANATION OF PLATE.

Fig. 1.—Ventral view of hexapodal larva, parasitic on *Tettix granulatus*. Original, greatly enlarged.

Fig. 2.—Dorsal view of same, correspondingly enlarged. Original.

ACANTHOCHALEIS NIGRICANS Cameron.—Yesterday (April 9), I was so fortunate as to capture a ♀ of this species at flowers of plum on the college farm, Las Cruces, New Mex. So far as I know, both genus and species are new to the U. S. fauna. The original specimen described by Cameron was from "Northern Sonora," collected by Morrison.—T. D. A. COCKERELL, Las Cruces, N. Mex.

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* The specimen of *Tettix* from which this mite was taken was collected by Prof. A. P. Morse, at Wellesley, Mass.

Preliminary Notes on the Youngest Larval Stage of some Odonata.

By PHILIP P. CALVERT.

Availing myself of the facilities afforded by the Biological School of the University of Pennsylvania, I have recently studied, by means of sections and otherwise, the external and internal structure of the larvæ of *Gomphus exilis* Selys and of *Libellula pulchella* Drury as it is immediately after hatching from the egg. The larvæ were obtained by capturing the females while ovipositing, collecting the eggs in a tumbler of water and allowing them to remain undisturbed until hatched. The detailed results of these studies, it is hoped to publish later; a very brief summary of some of them follows, and only such facts as are believed to be new are mentioned.* It is my intention to eventually study the entire embryonic development of these insects.

In both species studied, the divisions of the alimentary canal, fore-, mid- and hind-gut, occupy relatively different positions from those of the old nymph and imago, in that the fore-gut extends only as far as the second thoracic segment, the mid-gut from the third thoracic to the third or fourth abdominal, the hind-gut from the latter point to the apex of the abdomen. It follows, therefore, that during larval development the three parts of the alimentary canal undergo a shifting backwards, accompanied by a *relatively* great decrease in the length of the hind-gut and, correspondingly, a *relatively* great increase in that of the mid-gut. This is correlated with the great increase in the length of the middle abdominal segments at transformation, due to the necessity for a long rudder or steering-apparatus behind the wings for the preservation of equilibrium in flight. No similar shifting of the abdominal ganglia occurs.

In both species there are *three*, and only three,† Malpighian tubules present, of approximately equal length (.3—.35 mm.), and three rectal glands. In *L. pulchella*, in front of the latter, are the beginnings of six rectal gills, but in *G. exilis*, with a longer embryonic period (216 to 240 hours, as compared with 144 to

* A summary of the information then existing in regard to the structure of the youngest larvæ of the Odonata is given by the present writer in Trans. Am. Ent. Soc. xx, pp. 195-6, October, 1893.

† For a recent discussion of the Malpighian vessels of insects, see W. M. Wheeler, "Psyche," May to December, 1893.

168 hours for *L. pulchella*) these structures have not yet begun to appear. The larvæ of *G. exilis* thus leave the egg in a less developed condition than do those of *L. pulchella*, as is also shown by the facts that food-yolk is still present in considerable quantity in the mid-gut of *exilis*, whereas none is to be seen in any part of the body of *pulchella*, and that, as a probable result of the foregoing, the mid-gut epithelium of *pulchella* is much thicker than that of *exilis*.

Moreover, neither of these species show any trace of tracheæ, blood vessels or reproductive organs, although tracheæ are stated and figured by Packard* to occur in *embryos* of *Diplax*, whose age, however, is not given, and they exist in *larvæ* of *Mesothemis simplicicollis* at sixteen days after oviposition and possibly earlier.

The form of labium characteristic for the subfamily to which the species belongs, is already present in the youngest larvæ of these two species, which also agree in possessing chitinous hairs on the dorsal side of the body, arranged in a bilaterally-symmetrical manner.

It is with a sad satisfaction that I acknowledge the aid and advice given by the late Professor John A. Ryder during a considerable part of these studies.

SAWDUST FOR STEAMING.

By B. J. B. LEMBERT.

How I came to use it would be too long a story to tell, but give it, hoping others will be benefited, as much as I have been. Mr. Wm. H. Edwards kindly furnished me with a description of his method of steaming insects; it superseded the use of sand steaming with me, but was not quite the thing for the mid and high Sierras; it required too much watching, and the thorax of the insects offered too much resistance to the passage of the pins through them. One day I filled an open tin dish with dampened sawdust, buried my papers with butterflies in them, in the sawdust, left them there forty-eight hours, and to my surprise the insects were pinned and spread with an ease I had never as yet experienced. I then tried to improve the method. I procured a tin-box six inches broad, eight inches long and three inches

* Proc. Bost. Soc. Nat. Hist. xi, pp. 365-372, 1868.

deep, put in a depth of two inches of dampened sawdust, and in this I buried my papers of insects and left them forty eight hours with like results. Again I buried two papers twenty-four hours and then took them out, placed them on the surface of the sawdust forty-eight hours longer, replaced the cover both times. With the last method a *Syneda* moth became so limp that the wings laid over on my thumb and forefinger, the pin ran through body as if it were a jelly. Another plan I adopted was to fill a tin fruit-preserving can with sawdust, place a piece of tissue paper on the surface of the sawdust, take my insects out of the packets and place them on the tissue paper, then place an inverted tin can that will fit and cover the rimmed mouth of the can containing the sawdust. The vacuum in the top can holds the vapor and forces it to return to make its escape close to the insect, thus having a double action as it were. It is clear that there is an increased volume of vapor over sand and being held in bounds doubles its action and is possibly slightly acidulated, but this I will leave for science to deal with. Try it entomologists, there is room for improvement. For soft bodied moths and microlepidoptera it works like a charm. Geometrids, Pyralids and smaller insects spread in from twelve to eighteen hours in the double can method, and with those that are left in longer, care must be taken in spreading to let the wings dry somewhat before putting on the bits of glass to keep them in place, as the wing may stick if too wet. This fact need hardly be stated to the experienced entomologist, but to those that are beginners caution is necessary. In using this method it will also be found that the antennæ and bodies can be adjusted in any desirable position.

———o———

PSELAPHIDÆ.

By EMIL BRENDEL.

Bryaxis (*Reichenbachia*) **semirugosa** n. sp. is a dark umber-brown *Pselaphide* with legs and antennæ more dull reddish brown and 1.3 mm. long. Head, prothorax and abdomen polished impunctate, the elytra deeply and roughly variolate, the variolæ irregularly transversely, eyes small prominent; vertex quadrate with three large, equal confluent equidistant foveæ; clypeus transverse as long as the rather long, bilobed labrum. Antennæ about as long as the head and prothorax, the joints 3-7 oblong conical, the 8 smallest quadrate, 9 and 10 slightly transverse, rapidly increasing in width, 11 large, obliquely pointed; prothorax very

convex, wider than long, lateral fovea very large, the median one small, deep and circular. Elytra with the shoulders broad, rounded, the discal lines slightly impressed; first dorsal segment four times wider than long, border widely reflexed, the carinæ sharp, divergent, short more than one-fifth of the segmental width apart, disc at the base each side deeply depressed.

Male and female, East Alleghanies, Jerome Schmitt. It ranges near *R. cribricollis*.

In order to correct certain odd presumptions, I do here, for the last time, give the diagnoses of the following species:

R. gemmifer.—Pronotum with small, evenly distributed punctures, abdominal carinulæ very close, hardly visible beyond the elytra.

R. canadensis.—Pronotum coarsely punctured, in the ♀ smaller, carinæ sometimes almost as long as the segment, close at the base and divergent. Elytra and dorsum punctulate.

R. cribricollis.—Pronotum coarsely punctured almost variolate, carinæ less than one-third of the segmental width apart, slightly divergent.

R. puncticollis.—Pronotum evenly, sharply punctured, carina much more than one-third apart. *R. divergens* and *radians* have the pronotum impunctate, carinæ close at the base.

R. divergens.—Carinæ short, elytra unevenly punctured 1.2 mm. long.

R. radians.—Carinæ one-half the length of the segment, elytra impunctate, 1.5 mm. long.

R. inopia? Casey.—First insufficiently described, then compared with *Nisaxis tomentosa*, then the fabricant joined it to *rubicunda*, still later to *puncticollis*, and finally ruminating the same again disgorged it identical with *littoralis*.

Casey evidently does not know, what he is about in trying to save "*inopia* Cas."

Bryaxis labyrinthea Cas. is, indeed, very closely allied to *B. intermedia*, which also comes from New York, so closely that there is hardly room for a variety.

Rybaxis mystica Cas. a variety of *conjuncta*, described by me as *R varicornis*,

Tychus testaceus Cas. formerly sworn to be different from *T. minor*, which is really the truth, is now again unsworn and said to be identical, probably in order to make two n. sp., which do

not differ from *T. minor* except in the "vertexal spiculæ," and not even among themselves according to the descriptions.

Oropus striatus, (subimpunctate) and *Oropus montanus* (strongly punctured) are good species. The rest of *Oropus* were several times reduced and restored.

Rhexidius asperulus nil

Sagola (not *Sonoma*) *tolulæ*, *isabellæ*, *corticina* and *parviceps* are good species; the rest, owing to the variation of sexual ventral distortions in almost every individual, are invalids.

If Casey found in LeConte's cabinet a *R. divergens* with punctured pronotum, the label has been misplaced by negligent, or perhaps willful hands. LeConte's collection ought to be watched better, to prevent handling it by light-fingered persons.

Casey commenced to do with the Pselaphidæ as he did with *Stenus*, *Trogophlœus*, *Sitones* and the Baridæ, but "Je ne voudrai pas etre violenté d'oter la fumier de ses synonymes."

AFTER COLEOPTERA.

By J. H. B. BLAND, Philadelphia, Pa.

From the 6th to 20th of July, 1884, I had the opportunity of collecting along the banks of Poko Poko Creek, which empties into the Lehigh River, at Parryville, Carbon County, Pa.; the creek flows between a series of mountains; the timber is mostly pine, interspersed with oak, hickory and maple; the soil surface is covered with small stones to such an extent that it looked as if it would discourage any agriculturist. Carabidæ were very scarce, and I found but few specimens—by beating I obtained *Corymbites hieroglyphicus*, *C. hamatus*, *Adelocera marmorata*, *Goes debilis*, *Leptostylus macula*, *Liopus alpha*, *Lyturgus querci*, *Hyperplatys aspersus*, *H. maculatus*, *Strangalia bicolor*, *S. famelica* and *Chrysobothris scitula*.

Two days I devoted to aquatic Coleoptera. On the edge of the creek I found two species of *Berosus*, two of *Dineutes*, two of *Haliplus*, two of *Dryops*. About one-quarter mile from the mouth of the creek there is a dam; the stream below, the distance of one hundred feet, has a considerable number of submerged plants, some having the appearance of moss, others have a round form; from these I captured quite a number of *Elmis*, *Stenelmis*,

and *Macronychus*. I used a fine brass-wire sieve, lifting the stones with the plants attached into the sieve; returning to the bank I had a white muslin cloth spread on the ground; distributing the plants on the cloth, many of the beetles left immediately, others I obtained by pulling them from the stones and washing them in the sieve; then using a lens in finding them; also picking them out of crevices with the point of a small pocket knife. I found plants growing on the slag, from an iron furnace, the most favorable for that kind of collecting. This portion of my work was at a depth of 8—16 inches of water. I also tried sinking pieces of wood, securing them by weights, which yielded a few specimens each day.

———o———

Leucarctia rickseckeri.

Mr. L. E. Ricksecker has kindly presented to the American Entomological Society a pair of the fine species named in his honor by Dr. H. H. Behr in "Zoe," vol. iv, p. 247. *L. rickseckeri* may be described as follows:

It is about the size of small specimens of *L. acræa*. The wings of the female are immaculate, except a minute black discal spot on anterior wing. Body similar to *L. acræa*, but with the black spots fainter, sometimes obsolete. In the male the thorax and anterior wings are a diffused smoky color, immaculate, except the minute discal spot; posterior wings yellowish brown, with one discal and two or three submarginal spots quite indistinct and nearly obsolete. Both pairs of wings are brown underneath, with a few variable, obsolete, black points.

Mr. Ricksecker speaks of the species as follows: "June 11, 1891, I found three larvæ about full grown, similar in general appearance to those of *L. acræa* on a species of *Senecia*. They commenced spinning cocoons June 18, and three males emerged July 18, 1891. June 18, 1893, I visited the same place, and after a long day's diligent search I had twelve caterpillars. June 15 they commenced spinning cocoons; June 20 eight cocoons (the remainder escaped from the cage); July 5–12 six imagines—♂ 2, ♀ 4. Two cocoons contained parasites. Locality, Sonoma Co., Cala." (We have reproduced the above for the benefit of those who do not have the pleasure of reading "Zoe.")

ENTOMOLOGICAL NEWS.

Published monthly (except July and August), in charge of the joint publication committees of the Entomological Section of the Academy of Natural Sciences, of Philadelphia, and the American Entomological Society. It will contain not less than 300 pages per annum. It will maintain no free list whatever, but will leave no measure untried to make it a necessity to every student of insect life, so that its very moderate annual subscription may be considered well spent.

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PHILADELPHIA, PA., JUNE, 1895.

A NEW DEPARTURE.

(See page ii of cover.)

Dr. R. Ottolengui has inaugurated something new in entomology, at least in this country. Auction Sales of insects are quite common in England because entomologists are more numerous there than here. We think the plan is a good one, and we wish it success; there is no doubt but that Dr. Ottolengui will deal justly with all. Rule second we think is a mistake, and should be modified. We think that all kinds of material for which there is any sale should be listed. Many people want common material at a low price. Cabinets and apparatus might also be disposed of in the same way. There are also doubtless many small collections for sale that could be had at a small figure, and that would be a big aid to the beginner, especially if correctly named. As an example of the latter, the American Entomological Society has a large amount of duplicate Coleoptera that it would sell at almost any price as the space it now occupies is more valuable than the specimens. We will view with much interest the result of this first annual sale.

THE vesicatory principle of the blister-fly is called *Cantharidine*, and has been ascertained by experiment to reside more particularly in the wings than in other parts of the body. Our officinal insect is the *Cantharis vesicatoria;* and since the principal supply is from Spain, we call them commonly *Spanish-flies.* In Italy, the *Mylabris cichorii*, a native of the south of Europe, is used; and the *M. pustulata*, a native of China, is used by the Chinese, who also export it to Brazil, where it is the only species employed. In India also a species of *Meloe* is used, possessing all the properties of the Spanish-fly.—*Cowan's Curious Facts.*

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

Insect Life.—Since the above comments (see last NEWS) on the San José Scale were written, the New York "Sun" of April 3rd, has commented on some of the contents of this same number of "Insect Life," and in a somewhat different strain. "If you see it in the "Sun" it's so:" that is, what appears in every issue of that remarkably bright and interesting newspaper; but the difficulty is, although the "Sun" usually tells the truth, it does not always tell all the truth, and this is the case when it comments in rather a sarcastic and caustic manner upon two notes concerning the migration of the Cockroaches, and the record of an abnormal flight of butterflies. It intimates that this must necessarily be of vast importance to the agriculturists at large and gives the impression that it is practically all that this number of "Insect Life" contains. It fails to tell the whole truth, because it ignores the contribution to the life-history of the San José Scale, which is certainly practical, and the paper on the new cotton *Anthonomus*. The outcome of the frost in Florida, as far as the destruction of injurious insects is concerned, is certainly of some importance, and indeed with the possible exception of the two articles above mentioned comprising in all only two or three pages out of nearly eighty, everything in the number is decidedly practical. This brings me to the real point of this note! It has been stated with more or less authority that "Insect Life" was about to be discontinued at the end of the current volume. It is to be hoped that this is a mistake, and that the authorities will not be unfavorably influenced by criticisms of the character above referred to. The volumes of "Insect Life" contain a great amount of practical entomological information: they contain also much of scientific interest that is indispensible to the student of Economic Entomology. "Insect Life" has been criticised as journalistic in character, and so far as this has been the case it has been open to criticism; but this is a minor feature, which can be easily omitted without injuring the general character of the publication itself. It has also been criticised for containing descriptive and systematic matter which has no place in a government publication of that description. Admitting even this criticism to be valid, yet even with this feature omitted, there would remain a great amount of valuable material of an economic character, which is perfectly suitable for publication by the government and decidedly useful to agriculturists and to other working entomologists. It goes almost without saying that with a force of men, such as are in the employ of the Division of Entomology, many interesting observations are made outside of those investigations in which the gentlemen concerned are especially employed. Yet their special employment only is made to form the burden of the Annual Report and the subjects of periodical Bulletins issued from time to time. A vast number

of minor observations, hardly suitable for the Report, or the special Bulletins, would be wasted without an outlet like "Insect Life," and frequently it becomes very desirable to reach the farming community promptly with information that will be useful and can be copied and reprinted in the agricultural journals of the country at large. In the opinion of the writer it will be a serious mistake to discontinue now, after seven years, the publication of so useful a periodical as "Insect Life."

Vapors and Gases as Insecticides.—Within the last month three Bulletins have been received speaking of the use of vapors, either of bisulphide of carbon or hydrocyanic acid, for insecticide purposes. Bulletin 27 of the Iowa Station contains records of a series of experiments on melon lice, which do not seem to have been quite as successful or conclusive as those which were carried on by myself and recorded in Bulletin No. 109 of the New Jersey Station. I am not able to understand at present, the reasons for the differences in the result, because I have never had any revival of plant lice treated with the bisulphide after they were in my judgment dead. I have used the material since my melon lice experiments in a number of instances, on potted plants, and always with absolute success. So also I have had reports from growers of vegetables under glass that the material has proved successful in destroying plant lice on lettuces where the benches were covered with a sash. A few experiments with hydrocyanic acid gas are also recorded; but here also the success was only partial, and in rather strong contrast with the experiences recorded by Prof. Garman, in Bulletin No. 53, of the Kentucky Experiment Station. Mr. Garman found that using the gas would accomplish the desired end of killing plant lice in about four minutes, whereas the bisulphide would require about an hour; therefore the advantage in some directions certainly seems to be with the hydrocyanic acid gas. But this is such a violent poison that I confess to some hesitation in advising its use. After all it will need many more experiments before we can be certain of just what this gas will do. It may have a field larger than we now realize, and almost undoubtedly the introduction of this gas and the vapor of the bisulphide will make a considerable change in insecticide practice. It is another index of the change in the work of the Economic Entomologist, to which reference was made in the last number of the NEWS.

THE vulgar opinion that the ear-wig, *Forficula auricularia*, seeks to introduce itself into the ear of human beings, and causes much injury to that organ, is very ancient, but not founded on fact, for they are perfectly harmless. To this opinion the names of this insect in almost all European languages point; as in English, *ear-wig* (from Anglo-Saxon *eare*, the ear, and *wigga*, a worm; hence, also, our word *wiggle*); in French, *Perce-oreille*, and in German, *Ohr-wurm*. But, according to some writers, these arose from the shape of the wing when expanded, which then resembles the human ear; and *ear-wig* might easily be a corruption of ear-*wing*, —*Cowan's Curious Facts.*

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

THE NEWS will not be published during July and August. This number contains 36 pages.

A CURIOUS PICTURE DISCOVERED AT HAMILTON COLLEGE.—A curious specimen of slow photography, says the New York Sun, came to light recently in the renovation of the collection of insects in the natural science hall at Hamilton College. It was years since the cabinets had been opened or the specimens moved or rearranged. In a corner of a cabinet that stood facing a window was a very large specimen of the common blue swallow-tail butterfly (*Papilio asterias*), which had been all but destroyed by butterfly lice, diminutive insects that work havoc among mounted specimens unless their inroads are guarded against by chemicals.

Inspector William P. Shepard, who was renovating the collection, removed the butterfly and was surprised to find beneath it, on the white paper with which the cabinet was lined, an exact reproduction of the insect, even to the most minute curves and points in the outline of the wings. The paper was carefully removed, and now forms an exhibit by itself in another part of the hall. The process of photography had perhaps consumed eight years, as the butterfly had remained in the cabinet undisturbed for at least that period.—*Philadelphia Record.*

PROFESSOR—"How many legs have insects?" Candidate—"Five per cent. of insects have no legs at all, 11 per cent. have one, 14 per cent. two or three, 10 per cent. four and five, but none six." Professor—"How in the world did you get this answer?" Candidate—"By carefully examining the collection belonging to the Hamilton College."

A NEW FOOD PLANT FOR HYPATUS (LIBYTHEA) BACHMANI.—This butterfly has been taken a number of times west of Lincoln, hovering around over the large tracts of wolf-berry (*Symphoricarpus occidentalis*), which covers the low ground near the creek. The eggs and larvæ have a'so been found on this shrub, and Mr. Roscoe Pound, a former student interested in the study of Lepidoptera, has collected and reared the larvæ to maturity on this wolf-berry. No hack-berry trees are to be found any-

where in the vicinity, and for that matter few are to be found about the city. Prof. Lawrence Bruner says he has never taken the larvæ on any other plant than the wolf-berry in Nebraska, and the butterfly is usually to be caught hovering near such a patch. As the *Hypatus bachmani* is a rather common butterfly in southeastern Nebraska, and the hack-berry trees are scarce, it is evident that its chief source of food in this region is found in the more common wolf-berry.—H. G. BARBER, University of Nebraska, Lincoln, Neb.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be limited to twenty-five for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

[The Associate Editor, contemplating an extended absence from Philadelphia, offered his resignation to the chairman of the Publication Committee of the NEWS. While this has not been accepted, his editorial connection for the present will be nominal only, and beginning with the next (September) number the Entomological Literature will be under the charge of Mr. William J. Fox. It may be well to add that the Associate Editor has exercised his editorial functions, during the past five years, only in preparing the monthly summaries of the entomological literature and the annual indices to the volume.—P. P. C.]

1. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, April, 1895.—Contributions to the phylogeny of the Arachnida.—On the position of the Acarina: The so-called Malpighian tubes and the respiratory organs of the Arachnida, J. Wagner (transl. from Jen. Zeit. Naturwis.). Description of a new suctorial millipede sent from Trinidad by Mr. J. H. Hart of the Royal Botanical Gardens, Trinidad, R. I. Pocock.

2. ZOOLOGISCHER ANZEIGER. Leipsic, April 8, 22, 1895.—On the Hydrachnid genera *Arrenurus* Duges and *Thyas* C. L. Koch, R. Piersig.

3. BULLETIN DE LA SOCIETE VAUDOISE DES SCIENCES NATURELLES (3), XXXI, No. 115. Lausanne, June, 1894 (received April 23, 1895).—Researches on the metamorphosis of the Lepidoptera (the formation of the imaginal appendices in the pupa of *Pieris brassicæ*), J. Gonin, figs., 5 pls.

4. THE BOTANICAL GAZETTE. Madison, Wis., April, 1895.—Flowers and insects—xiv, C. Robertson [*Gentiana, Phlox, Mimulus*, etc.].

5. THE KANSAS UNIVERSITY QUARTERLY, iii, 4. Lawrence, Kans., April, 1895 (received April 23).—Diptera of Colorado and New Mexico, W. A. Snow. Supplementary list of North American Syrphidæ, id. *Dialysis* and *Triplotricha*, S. W. Williston, fig. New Bombyliidæ, id.

6. BULLETIN No. 28. Hatch Experiment Station of the Massachusetts Agricultural College. Amherst, Mass., April, 1895.—Canker worms, army worm, corn worm, red-humped apple tree caterpillar, antiopa butterfly, currant stem-girdler, imported elm bark louse, greenhouse *Orthezia*, C. P. Lounsbury.

7. THE ENTOMOLOGIST'S RECORD. London, April 15, 1895.—Iris, G. M. A. Hewett. Notes on butterfly pupæ, with some remarks on the phylogenesis of the Rhopalocera (concl.), T. A. Chapman.—May 1, 1895. The genus *Smerinthus*, A. Bacot. Variation considered biologically: being some notes suggested by the Romanes lecture of 1894, J. W. Tutt. On wing structure, J. A. Moffat. Pre-occupied generic names in the Lepidoptera, A. R. Grote.

8. ARCHIV DES VEREINS DER FREUNDE DER NATURGESCHICHTE IN MECKLENBURG, 48 Jahrgang, 1894, 1 Abtheil. Guestrow, 1894.—The beetle remains of the Dobbertine Lias, E. Geinitz-Rostock, 1 pl.

9. SITZUNGS-BERICHT DER GESELLSCHAFT NATURFORSCHENDER FREUNDE ZU BERLIN, March 19, 1895.—On the participation of the male of a Belostomid in the care of the young, E. Schmidt.

10. BULLETIN DES SEANCES DE LA SOCIETE NATIONALE D'AGRICULTURE DE FRANCE, lv, 1. Paris, 1895.—*Neuronia popularis* in the pasturages of the north of France, M. Laboulbene.

11. COMPTES RENDUS. SOCIETE DE BIOLOGIE. Paris, April 6, 1895.—On the progenesis of psoric Sarcoptidæ, Dr. Trouessart.

12. LEPIDOPTERA INDICA. By F. Moore. Pt. xx. London, L. Reeve & Co., 1895 (received April 30, 1895).—Contains pp. 177-192 of vol. ii, pls. 147-154 [Amathusiinæ].

13. THIRD SUPPLEMENT to the List of Coleoptera of America, North of Mexico, by Samuel Henshaw. Philadelphia: American Entomological Society, 1895; 62 pp.—"The present supplement to the List of Coleoptera of America north of Mexico (Philadelphia, 1885), includes all the additions and corrections contained in the first and second supplements; also such as have been noted since May, 1889. The species are numbered continuously with the List" and the total now amounts to 11,255.

14. DIE KÄFER VON MITTELEUROPA. Die Käfer der œsterreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des franzœsischen und italienischen Alpengebietes. Bearbeitet von Ludwig Ganglbauer.

Zweiter Band. Familienreihe Staphylinoidea. I. Theil Staphylinidæ, Pselaphidæ. Mit 38 Holzschnittfiguren im Text. Wien, Carl Gerold's Sohn, 1895, pp. vi, 881.

15. LE NATURALISTE. Paris, April 15, 1895.—Acridophagous birds, M. Forest.

16. BIOLOGISCHES CENTRALBLATT. Erlangen, April 15, 1895.—Felix Plateau's observations and experiments on the means of protection of *Abraxas grossulariata*, H. Tiebe.

17. ANNALES DES SCIENCES NATURELLES, ZOOLOGIE (7), xix, 4–6. Paris, 1895.—Glandular apparatus of the Hymenoptera (concl.), L. Bordas, 3 pls.

18. LA NATURE. Paris, March 16, April 20, 1895.—Fossil insects of Primary times, C. Brongniart, 3 figs.

19. THE CANADIAN RECORD OF SCIENCE, vi, 2. Montreal, April, 1894 (received May 7, 1895).—Ancient Myriapods, G. F. Matthew.

20. NOTES FROM THE LEYDEN MUSEUM, xvi, 3-4, July-October, 1894 (received May 7, 1895).—Descriptions of some new Brenthidæ, A. Senna.

21. KNOWLEDGE. London, May 1, 1895.—The Winter-life of insects—ii, F. A. Butler, figs.

22. JAHRBUCH DER KONIGL. PREUSSISCHEN GEOLOGISCHEN LANDESANSTALT UND BERGAKADEMIE ZU BERLIN, xiv, 1894.—Insect borings in the brown coal of Brandenburg, O. von Gellhorn, 1 pl.

23. THE TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1895, pt. 1, April 25, 1895.—A list of the Lepidoptera of the Khasia hills, part iii, Col. C. Swinhoe. Notes on the fungus growing and eating habit of *Sericomyrmex opacus* Mayr, F. W. Urich. On the Longicorn Coleoptera of the West India Islands, C. J. Gahan. Life-history of *Pericoma canescens* (Psychodidæ), Prof. L. C. Miall and N. Walker, 2 pls.; with a bibliographical and critical appendix, Baron Osten Sacken. Questions bearing on specific stability, F. Galton.

24. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON 1894, pt. iv, April 1, 1895.—Descriptions of new species of Coleoptera of the genera *Oedionychus* and *Asphæra*, M. Jacoby.

25. THE ENTOMOLOGIST. London, May, 1895.—On the causes of variation and aberration in the imago state of butterflies, with suggestions on the establishment of new species (cont.), Dr. M. Standfuss, translated by F. A. Dixey. A catalogue of the Lepidoptera of Ireland (cont.), W. F. deV. Kane. Those "jumping eggs," C. C. Hopley.

26. PSYCHE. Cambridge, May, 1895.—On a rational nomenclature of the veins of insects, especially those of Lepidoptera, A. S. Packard, figs. The genus *Oxyptila*, N. Banks. *Colias hecla*, H. Skinner.

27. THE CANADIAN ENTOMOLOGIST. London, Ont., May, 1895.—The Coleoptera of Canada—ix, H. F. Wickham, figs. List of butterflies taken at Winnipeg, Man., 1894, A. W. Hanham. New Tachinidæ with a slender proboscis, D. W. Coquillett. Notes on the Thyatiridæ, H. G. Dyar. Preliminary studies in Siphonaptera—iv, C. F. Baker. Note on the Platypterygidæ, A. R. Grote. Additions to the list of U. S. Hymenoptera, T. D. A. Cockerell. A new Pulvinaria found on Orchids, id. The use of *Megalopyge*, A. R. Grote. Bombycidæ—Zygænidæ, H. G. Dyar.

28. ENTOMOLOGISCHE NACHRICHTEN, xxi, 8. Berlin, April, 1895.—On gall-fly larvæ inhabiting moss, J. J. Kieffer. *Mesolenus* as a parasite of *Eumenes*, H. Friese. In remembrance of Dr. phil. Erich Haase [summary of his contributions to insect phylogeny], C. Verhoeff.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

PHILADELPHIA, MAY 14, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 S. 13th St. Members present: Messrs. Bland, Fox, H. W. Wenzel, Laurent, Trescher, E. Wenzel, Johnson, Boerner, Schmitz, Drs. Castle and Griffith. Honorary members: Prof. J. B. Smith and Dr. Henry Skinner. Visitor: Mr. W. J. Gerhard. Meeting called to order 8.50 P.M., President Bland in the chair. Committee on Photograph reported progress, Mr. Wenzel exhibiting a photograph of the late Mr. Seeber, which was obtained from one of the Social's group pictures.

Committee on Resolutions presented the following which was approved "The Feldman Collecting Social having heard with deep sorrow of the death of C. Ernst Seeber, one of its oldest and most assiduous members and former vice-president, be it

Resolved, that it is the sense of this meeting that in the death of our fellow-member and co-laborer, entomology has lost a devoted follower, one whose memory will ever be revered by his associates, who mourn his loss deeply; and that a record of these resolutions be made on our minutes, and a transcript be forwarded to the family of the deceased, as a mark of sympathy in its bereavement.

H. W. WENZEL,
D. M. CASTLE, M. D.,
WM. J. FOX,
} *Committee.*

The committee also presented a memoir on the life of Mr. Seeber, which was read by Mr. Wenzel, and on motion the committee was instructed to have the photograph and memoir published in the columns of the ENTOMOLOGICAL NEWS.

In the death of C. Ernst Seeber, March 28, 1895, entomology, particularly local entomology, loses one of its most arduous followers. Mr. Seeber was born in Gschwend Gaildorf, Würtenburg, Germany, Dec. 21, 1833, and graduated from the high school at Crailsheim. He learned his trade at Backnang, in the same province, where he also took a course in surgery. From Backnang he went to Stuttgart, where he held a position from 1850 to 1853. In the latter year he came to the United States, residing at Trenton, N. J., until 1855, when he came to Philadelphia and started in business. He soon became acquainted with some of the local collectors, and was elected a member of the American Entomological Society in August, 1862.

From boyhood up to the time of his death, entomology was his favorite pursuit, although averse to prominence in the literary field and in systematic work, a fact which is fully attested by the absence of his name from among the contributors to our entomological Journals, and in conse-

quence of which was probably unknown outside of Philadelphia. His keenness of observation, love of nature, and his knowledge of field work placed him among the first rank of collectors, whose work is really the basis of deeper research. He was always willing to impart to others the secrets of mother nature that his sharp sense of discernment may have uncovered. In his early life Lepidoptera was his favorite study, but in later years he became more interested in Coleoptera, of which order he became the possessor of a very large collection, which he finally, after the death of his wife, disposed of. His love for nature was not confined to entomology as a glance at the garden attached to his residence would have shown, and in later years when his business affairs permitted not of excursions to the country, many were the beetles, butterflies, and wasps taken by him on the flowers planted and nursed by him, and which collection he used to take pleasure in dubing "my back yard collections."

At the time of his death he was connected with several German societies, and took an active part in the meetings of the Feldman Collecting Social, of which society he was formerly vice-president, and at which his jovial nature and witticisms were a pleasing adjunct, in fact, his failure to attend a meeting was always cansidered a matter of regret by his fellow-members. His death was a matter of much regret, and he died as he lived—beloved by all who knew him.

Dr. Skinner exhibited a box of butterflies (*Anthocharis genutia*) collected by Mr. Gerhard and himself on May 5th at Arcola, on the Perkiomen Creek. His object, he stated was firstly to show how Lepidoptera should be caught; secondly how mounted and thirdly how and what data should go on the pin. Prof. Smith remarked, that the weather in the early part of May had proven very unfavorable for the pollination of fruit blossoms by bees; he stated also that he had noticed acre upon acre of one variety of pear, planted throughout Burlington County, N. J., and there was no evidence of bee culture for miles to further pollination; he further stated that what pollination was done, was not done by the honey bee, but by a very small species. Prof. Smith also stated that in the early part of this month he had found a number of infested Kiefer pear trees, and on breaking a number of twigs he found them to contain *Agrilus sinuatus* in the pupa state, it being the introduced European species which he mentioned before as attacking the pear in New Jersey. He had cut quite a number of these twigs, which contained larvæ of the aforesaid species. Mr. Fox exhibited two species of Vespidæ belonging to the genera *Chartergus* and *Polybia* respectively, which showed a remarkable superficial resemblance; both were from Tepic, Mex., and the *Polybia* is a new species. Mr. Wenzel remarked that on May 10th he had noticed the first large flight of *Lachnasterna—micans, hirticula* and *arcuata;* he also exhibited specimens of *Calasoma frigidum* and *Panagæus fasciatus* from the low lands below Philadelphia, remarking that they were the first taken by him in this locality. Of *Buprestis ultramarina* he found several spec

mens on May 5th; also *Cremastochilus harrisi*, in numbers on same date. Mr. Bland mentioned observing near Newton Creek, N. J., on April 14th, *Cicindela repanda* and *C. modesta* congregated in great numbers in a space of about thirty feet in diameter, the specimens being fresh in color, as though just having emerged into the imago form. He had also found near Manyunk, Pa., on May 5th, *Cyllene pictus* very abundant on hickory. Prof. Smith suggested the appointing of a committee empowered to act in reference to a field meeting of the different societies on July 4th. A motion being made and carried to that effect the president appointed Dr. H. G. Griffith and Mr. Wm. J. Fox. No further business being presented the meeting adjourned to the annex at 10.30 P. M.

THEO. H. SCHMITZ, *Secretary*.

ENTOMOLOGICAL SECTION of the Chicago Academy of Sciences.—An informal meeting of this Section was held at the home of A. J. Snyder, 2622 Hartzell Street, North Evanston, Ill., on Friday evening, May 17th. A private collection of Lepidoptera was examined, notes of the season compared, and some collecting done in the evening.

A. J. SNYDER, *Recorder*.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

APRIL 25, 1895.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Meeting called to order at 8.20 P. M. Members present: Seiss, E. T. Cresson, Fox, Ridings, Liebeck. Associates: Westcott, Bland, Boerner. Mr. William J. Gerhard visitor. The publication Committee reported in favor of the publication of the following papers: "Review of the Stratiomyia and Odontomyia of North America." By Chhas W. Johnson. "List of the Coleoptera of Southwestern Pennsylvania, with Notes of Frequency of Occurrence." By Dr. John Hamilton. "The Species of Dineutes of Boreal America." By Chris. H. Roberts. A letter from Mrs. Peary was read in relation to a Greenland Relief Expedition to bring her husband home. Paper No. 307 was presented for publication. Dr. Skinner exhibited larvæ of *Trogoderma* in great numbers, which had been discovered by Mr. Gerhard in the window ventilator in the room of the Section. Dr. Horn spoke of the larvæ of *Tribolium* being a museum pest, but eating principally paste and cork. He further said the two species had been confounded in collections, *T. ferrugineum* being separated from *confusum* by the last three joints of the antennæ being abruptly broader, while in *confusum* the antennæ are gradually broader to apex. The

speaker also said that *Copturus minutus* had been recently taken on the seashore by the Philadelphia collectors, it being a Southern species. A nearly related species has also been found at Cape San Lucas. The speaker pointed out the differences existing between the species.

Dr. HENRY SKINNER, *Recorder*.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

TWO NEW SPECIES OF CLISTOPYGA.

By G. C. DAVIS.

Clistopyga zonata n. sp. ♀.—Length 6 mm.; ovipositor 1 mm. Black, with white markings; the pleuræ and sternæ of meso- and metathorax rufous, also the scutellum and four posterior coxæ and femora; the antennæ, two stripes on mesonotum and more or less of the anterior portion of the abdominal segments, reddish brown; the face, orbital lines to the back of the occiput, mouth except tips of mandibles, tegulæ, spot beneath, long line in front, postscutellum, spot on outer angles of metathorax, anterior coxæ, all the trochanters and a transverse band near the apex of the first five abdominal segments, white; femora, tibiæ and tarsi of anterior legs, reddish white; tibiæ and tarsi of middle legs white, the tarsal joints more or less tipped with black; tibiæ and tarsi of hind legs white, with a band near the apex of the femora, a band on the second fifth of the tibiæ, and another on the apical two-fifths, and also the tips of the tarsal joints, black. Wings hyaline, iridescent; areolet wanting, with the space pentagonal in outline; mesonotum full, oval, bulging considerably in front; parapsidal grooves nearly obsolete; mesothorax deep; metathorax and abdomen closely and rather coarsely punctured; the first segment of the abdomen has a broad, flat disc near the base, extending to near the middle of the segment, and margined with a small, but distinct carina. The following segments are narrowed at the base and with a shallow transverse depression anterior to the white bands.

One specimen from Dr. W. A. Nason, of Algonquin, Ill.

Clistopyga alborhombarta n. sp. ♀.—Length 6 mm.; ovipositor 1 mm. Black, with white markings; pleuræ and sternum, rufous; face, mouth, scape beneath, orbital lines above antennæ terminating in a large disc on the vertex; tegulæ, spot in front, spot beneath, margins of mesonotum with the lines recurving and uniting before the scutellum; scutellums, pictus, all of the coxæ, four anterior trochanters and five diamond-shaped spots on the abdomen, white; four anterior legs with femora and tibiæ white, spotted more or less with light brown, tarsi white, with joints tipped with brown, terminal joint black at tip; posterior legs white, with basal part of trochanters, a patch on upper terminal third of tibiæ and all of the tarsi, except base of joints, black; the large white spots on the

abdomen are at the base of segments 2–6; the one on segment 2 is rectangular and covers about two-fifths of the segment either way, each succeeding spot becomes transversely elongate, and longitudinally narrowed until the one on segment 6 is quite narrow and less distinct than the others. Wings transparent, iridescent. Antennæ, except scape, black; the body is smooth, shining and with very few punctures. Head small, eyes comparatively large; mesonotum shows the trilobed structure, the anterior lobe having a longitudinal groove in the centre of it; mesosternum much produced beneath, so that the mesothorax is at least twice as deep as the metathorax; metanotum with two longitudinal carinæ and one transverse carina near the apex; tergum of abdomen uneven, the white diamond-shaped spots raised and surrounded by a distinct crenulated channel.

One specimen collected in Florida by Mrs. Annie Trumbull Slosson.

There are seven species in the genus, and the following table may serve as a guide in separating them:

Abdomen entirely black.
  Face and scutellum black.
    Posterior tibiæ black at base . . . . . **canadensis** Prov.
    Posterior tibiæ white at base . . . . . **truncata** Prov.
  Face with white orbits, scutellum white . . . . . **annulipes** Cress.
Abdomen black, with large, central, elliptical, white spots on segments 2–6. **albertensis** n. sp.
Abdomen with the apical edges of the segments white.
  Posterior legs black with white annuli . . . . . **nanella** n. sp.
  Posterior legs fulvous, oblique grooves on abdominal segments as in *Glypta* . . . . . **pulchripicta** Ashm.
  Posterior legs white . . . . . **pleuralis** Ashm.

DESCRIPTIONS OF THE LARVÆ OF THREE SAW-FLIES.

By HARRISON G. DYAR, A. M., New York.

Trichiosoma triangulum Kirby.

Larva.—Large, like *Cimbex*. Head bright straw-yellow, rounded, shagreened, not shiny; width 4.5 mm.; a crease before apex of each lobe; eye on a black spot; a point near it representing the antenna. Body curled spirally, green, covered with white dots; segments about 8 annulate, the annulets and the true segmental incisures about alike; two larger white dots on the subventral folds formed by an aggregation of small dots. Spiracles invert-cordate, black. Thoracic feet large, pale, black tipped. Abdominal feet present on joints 6–12 and 13, pale green. Body higher than wide, slightly smaller posteriorly.

Larvæ not uncommon on the willow and wild cherry at Keene Valley, N. Y., in the Adirondacks. They closely resemble the larva of *Cimbex*

americana in appearance and position, but lack the dorsal line of that species. The cocoon is large, of a firm texture, dark brown.

Lyda ochreata Say.

Solitary web-spinners on hazel (*Corylus rostrata*), many on the same bush, each in a part of a leaf rolled over in a cornucopia-shape and filled with gummy web. Rarely several in one leaf.

Egg shells.—Found singly on the back of the leaf, a thin, white, elliptical skin, 1.5 mm. in size.

Larva.—Head rounded, pale translucent testaceous, with a long pointed antenna before and above the black eye; mouth brown. Width at maturity 1.4–1.5 mm.

A transverse, black, narrow cervical shield; thoracic feet slender, pointed colorless, unused; abdominal none. A pair of jointed, pointed, colorless processes subventrally on joint 13; venter a little flattened; segments indistinctly 4-annulate; color transparent shining greenish, no marks; alimentary canal gives a blackish shade; dorsal vessel darker.

Monophadnus rubi Harris.

Sitting flat on the venter on raspberry leaves, singly; downy and green like the leaf stems, which they closely resemble. Head rounded, mouth pointed, green, pilose, eye black; width 1 mm.; segments obscurely 3-annulate; on second and third annulets a series of Y-shaped setæ, the shaft strong and thick, the limbs pointed, three on each annulet above the spiracle, those on the posterior annulet alternating with those before, placed each a little below the one on the second annulet, the lowest one just on the stigmatal line; two setæ on the uppar part of the subventral ridge (s.-v. ant.), and two on the lower part (s.-v. post.). The upper two on second annulet and upper one on third, have black limbs; all the rest white. Feet on joints 6–12 and 13. Body clear green, a little yellowish; thoracic feet clear, with black tips.

Last stage.—Smooth (no setæ); all translucent green, scarcely shining; width of head 1 mm. Annulets with transverse watery areas and slight irregularities to represent the setæ; segmental incisures a little folded; no marks. Enters the ground on acquiring this stage, and forms a frail cocoon. The change to pupa and imago takes place the following Spring.

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NOTE ON THE FORMS OF ALYPIOIDES.

By T. D. A. Cockerell, N. M. Agr. Exp. Sta.

The occasion of this note is a specimen of *Alypioides* received from Dr. A. Duges, which ought according to the way the species of this genus have been separated, to be new—differing from the two hitherto described about as much as they differ from one another.

I do not, however, take this view, but would rather regard all

the forms of *Alypioides* as representing one species, separable thus:—

(A.) Secondaries above without spots . . . *A. bimaculata* H.-S., 1853 (Mex. and New Mex.).

(B.) Secondaries above with one or more pale spots.

(i.) With a single large spot or patch . . var. *crescens* Walk. 1856 (New Mex. and Calif.).

(ii.) With two spots . . . . . var. *dugesii* nov. (Mexico).

The last mentioned may be more particularly described thus:—

A. bimaculata var. nov. *dugesii*.—Length of body 17 mm., of anterior wing 21 mm. Like *crescens*, but the light markings creamy white rather than yellow; middle spot on primaries quadrate, and considerably larger than in a specimen of *bimaculata* from Grant County, New Mex. Secondaries above with two large patches, one about the end of the cell, the other nearer the inner margin; also a faint dot near the inner end of the latter one, but apparently situated in the cell. Tongue orange as in the other forms.

Hab.—Guanajuato, Mexico (Dr. A. Duges). One specimen, in coll. Duges. Before venturing on the above remarks, I consulted Mr. Dyar, who writes that he quite thinks I may be correct in regarding these forms as varieties of one; and adds that he agrees that the Guanajuato form should have a name, though as a variety. He further remarks, in confirmation of the view taken, that a specimen of *crescens* in his collection has a trace of the second spot in the form of a little diffuse yellow dot.

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TWO NEW APANTELES,

By CARL F. BAKER, Fort Collins, Col.

Two new species of the genus *Apanteles* recently reared in the Entomological Laboratory of the Colorado Agricultural College seem to be of importance sufficient to warrant their publication.

Apanteles ephestiæ n. sp. ♀.—Length of body 3.6 mm., of antennæ 2.6 mm., ovipositor 1.05 mm. Black, shining; antennæ black, to deep brown at tip; palpi rufous. Legs, except coxæ, rufous, basal portions of anterior and middle femora, all of posterior femora, tips of posterior tibiæ and posterior tarsi, darker; stigma and nervures bounding first submarginal cell outwardly, dark brown; tegulæ yellowish brown. Head transverse, finely punctured, with rather dense pubescence; face below antennæ with a strong median ridge; ocelli prominent and black; mesonotum finely, thickly punctured, with an indication of a median carina posteriorly, and two oblique slightly depressed areas behind converging towards the scutellum; scutel-

lum shining, sparsely indistinctly punctate, anterior groove with about fourteen well marked pits; central fovea of postscutellum semicircular, nearly smooth within, on either side of this a deep sharply margined oblong-elliptical transverse fovea, rugose within; metanotum rugulose, with long sparse pubescence at the sides; medially extending nearly the whole length of the metanotum, a large deep, ovate-elliptical fovea, with a sharp double margin and with about three weak transverse carinæ crossing it within; posterior angles of metanotum acute, somewhat produced, slightly excavated within, the excavated area crossed obliquely by strong rugæ; lateral carinæ gradually diverging cephalad. Abdomen about as long as thorax, beyond first segment ovate elliptical; membranous margins of first and second segments brownish; tergum of first abdominal segment punctato-rugulose, with a large median area which is almost a repetition of that on the metanotum, except that the margins are not so sharply defined, and it is more regularly elliptical; this tergum has also a distinct circular fovea within each posterior angle; tergum of second segment finely obliquely aciculated on either side, leaving a triangular smooth area at base; tergum of first segment one and half times as long as wide at base, slightly broadening caudad, as long as second and third together; tergum of second segment short, nearly three times wider than long, trapezoidal, wider than the first at the suture between them, and two-thirds the length of the third; remaining joints smooth, shining; hypopygium brownish towards the tip, ovipositor black; posterior tibial spines not half the length of the first tarsal joint.

♂.—Tergum of second abdominal segment as wide as the first at the suture between them, much more distinctly trapezoidal than in the female and but little more than twice wider than long. Size somewhat smaller.

Described from four females and one male, reared from the larvæ of *Ephestia kuhniella* working in honey comb, the flies emerging November 22.

Apanteles gillettei n. sp. ♀.—Length of body 2.5 mm., of antennæ 1.5 mm., of ovipositor 2 mm. Black, shining; antennæ deep chocolate, basal joint black; mandibles light brown at tip, palpi honey-yellow distally; coxæ black; femora piceous, the anterior fading to light brown at tip; tibiæ light brown, the middle and posterior darker towards tips; tarsi brownish, posterior darker. Wings iridescent, stigma and veins pale brownish, nearly unicolorous. Head transverse but thick, obsoletely punctured on face, sparsely pubescent; face below antennæ with a strong median ridge; ocelli medium, pale brown to colorless; mesonotum obsoletely punctured, with two very shallow depressed areas on either side posteriorly; scutellum smooth, shining, impunctate, anterior groove with about fourteen well marked pits; central fovea of postscutellum semicircular, with a median carina, on either side a deep oblong-elliptical transverse fovea, rugose within; metanotum coarsely, irregularly rugose, coarser near the posterior angles, non-pubescent, with a well defined

median carina; posterior angles obtusely rounded; lateral carinæ strongly divergent cephalad. Abdomen slightly longer than thorax, beyond first segment ovate-lanceolate; membranous margins of first and second segments brownish; tergum of first abdominal segment coarsely longitudinally rugose, a third longer than wide, sides nearly parallel; tergum of second segment wider posteriorly, and three-fourths length of first, suddenly narrowed to the basal suture, where it is narrower than the first, coarsely longitudinally rugose; remaining segments smooth and shining; ovipositor dark brown; posterior tibial spines not one-half length first tarsal joint. The male differs only in size.

Described from seven females and three males reared from *Cacœcia argyrospila* on apple, the flies emerging June 23.

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CHARACTERS OF A NEW SPECIES OF THELIA.

By E. P. Van Duzee, Buffalo, N. Y.

In looking over my material of *Thelia univittata* a year or two ago I found I had confused two distinct species under this name, one of which appears to be still undescribed. Later I sent an example of the new form to Dr. F. W. Goding, who was then preparing a catalogue of the North American Membracidæ, and he pronounced it identical with some material he had placed under *Thelia cratægi*. In fact, the female does have a stronger resemblance to the female of *cratægi* than to that of *univittata*, but the specimen I have placed as the male of this new species is very close to the male of *univittata*, and not at all like that of *cratægi*. Below is a comparitive description of this new form:

Thelia godingi n. sp.—In Bull. Buffalo Society of Nat. Sciences, v, p. 189, 1894. Female; shorter and stouter than in *univittata* with the pronotum more thickly and evenly punctured and extended to or beyond the tip of the elytral areoles. In *univittata* the punctures are coarser and more irregular, leaving a few scattering callous-like spots and about four longitudinal smooth lines, beginning a little behind the shoulders and becoming connivent or evanescent before the tip, which in this species is more slender than in *godingi* and does not attain the apex of the elytral areoles. These longitudinal lines are more obscure and irregular in *cratægi*, and scarcely or not at all discernible in *godingi*. In this latter species the dorsal hump is nearly vertical before and behind, as wide above as below, with the apex well rounded and showing a slight inclination to become pointed at the middle. In *cratægi* the edges of the hump are parallel, but the anterior apical angle is rounded off, and the posterior is subacute. In *univittata* this protruberance is proportionately longer and more slender, and quite distinctly inclined forward with its apex

shaped about as in *cratægi*. Color: pronotum of *univittata* cinerous, punctured with blackish, and marked as in our other species with three black points over each eye, and a vertical black line before reaching to the tip of the dorsal horn; the punctures are fewer and more shallow toward the shoulders, leaving these parts paler; dorsal ridge marked with a broad white line, bordered with brown and extending from the tip of the horn to the apex of the elytra. This dorsal white line is a little narrower in *godingi*, and may become diffuse before the posterior tip through coalesance with a transverse, pale, anteapical band, which is more or less strongly indicated in this species. The anterior black vertical line is usually broken in *godingi*, and the punctures are concolorous with the surface of the pronotum which is marked as in *cratægi*, but usually with the pattern less clearly contrasted. The markings of this latter species are well represented by Emmons in the Nat. Hist. of N. Y. Agriculture vol. v, pl. iii, fig. 2, but he has figured the dorsal horn as longer and more slender than in any specimen I have seen.

The male of *godingi* scarcely differs from that of *univittata*, the characteristic markings being almost obliterated by dusky mottlings. In *cratægi* the markings are as clearly defined as in the female, but the dorsal horn is less elevated, though of about the same form as in the female.

This is an interesting addition to our described Membracidæ, of which I have taken a number of individuals about Buffalo, mostly on bushes of wild black cherry in June and July.

SOME MISSOURI SPIDERS.

By NATHAN BANKS.

The following spiders were collected in Missouri by my friend, Mr. Gilbert Van Ingen, in 1890. They were captured mostly near Springfield, in the southwestern part of the State:

DRASSIDÆ.

Micaria agilis nov. sp.—Length 5 mm. Cephalothorax, mandibles and sternum yellow, or pale yellowish brown; legs white, base of femur i brown, posterior pairs faintly lineated with brown; abdomen gray or blackish, with golden scales, distinctly constricted just before the middle, where there is an interrupted band of white scales, often another white band nearer the base; there are some scales near the tip with a greenish reflection; p. m. e. nearer to the p. s. e. than to each other.

I also have it from Washington, D. C., and Sea Cliff, N. Y. It is readily recognized by its generally pale color. It may have

been mistaken for *Herpyllus auratus* Hentz, but Hentz neither figures nor mentions any constriction to the abdomen of his species.

Prosthesima ecclesiastica Hentz

CLUBIONIDÆ.

Thargalia trilineata Hentz
" *longipalpis* Hentz
Anyphæna gracilis Hentz
Gayenna saltabunda Hentz
Trachelas tranquilla Hentz

AGALENIDÆ.

Agalena nævia Hentz
Cicurina arcuata Keys.
Cœlotes medicinalis Em.

DICTYNIDÆ.

Dictyna sublata Hentz
" *volucripes* Keys
Titanœca americana Em.

THERIDIDÆ.

Theridium tepidariorum Koch.
Lathrodectes mactans Koch.
Teutana triangulosa Walck.
Steatoda borealis Hentz
Asagena americana Em.
Floronia clathrata Koch.
Linyphia phrygiana Koch.
" *marginata* Koch.

Ceratinopis laticeps Em. (*Erigone zanthippe* Keys). This species, which I also have from Ithaca and Sea Cliff, N. Y., is certainly Keyserling's form; and I think that it is the ♀ of Emerton's *C. laticeps*.

EPEIRIDÆ.

Acrosoma rugosa Hentz
" *spinea* Hentz
Mahadeva verrucosa Hentz
Epeira insularis Hentz
" *trifolium* Hentz
Epeira trivittata Keys.
" *domiciliorum* Hentz
Argiope transversa Em.
Argyrœpeira hortorum Hentz
Tetragnatha laboriosa Hentz

THOMISIDÆ.

Xysticus nervosus Bks.
" *gulosus* Keys.
Coriarachne versicolor Keys.
Misumena oblonga Keys.
" *rosea* Keys.
Philodromus vulgaris Hentz

LYCOSIDÆ.

Lycosa carolinensis Hentz
" *erratica* Hentz
" *babingtoni* Blk.
Lycosa scutulata Hentz
" sp.?

One ♀ 14 mm. long, of not very definite characters, but unknown to me.

Lycosa missouriensis nov. sp.—Length 18 mm.; ceph. 9 mm., breadth of ceph. 6 mm. Leg i, 21 mm., leg iv, 25 mm., mandibles 4.5 mm. Cephalothorax dark red-brown, with rufous hair, blackish in eye-region; mandibles dark red-brown, with white hair; sternum and coxæ pale yellowish, with white hair; femora and patellæ yellow-brown; tibiæ, metalarsi and tarsi of legs i and ii almost black, and more densely clothed with whitish hair, those of posterior legs not much darker than the femora; abdomen above dark uniform brown, densely clothed with brown hair, below paler brown. The cephalothorax is regularly arched, quite high in front and the highest just behind the dorsal eyes; the first eye row is a little shorter than the second, and nearly straight; the eyes of second row are about their diameter apart; the third row is plainly wider than the second, and the eyes equal to those of the second, from which they are situated about once and a half their diameter; the mandibles are very large and stout; the sternum broad; the legs stout and of moderate length; on tibia i, there are two spines on inside, two below and a pair at tip, on tibia iv, two on inside, two on outside, and three pairs below. The epigynum consists of a shallow reddish depression, fully twice as long as broad, rounded in front and slightly narrower behind, where its corners are elevated and blackish, a narrow elevated septum passes through it, being highest between the black posterior corners.

One female.

Pardosa obsoleta Bks.? A young specimen.
Pardosa sp.? young ♂
Pirata montanoides Bks.
Dolomedes tenebrosus Hentz
" *sexpunctatus* Hentz
Pisaura undata Hentz

OXYOPIDÆ.

Oxyopes salticus Hentz

ATTIDÆ.

Phidippus audax Hentz
Philæus militaris Hentz
Plexippus putnami Peck
Dendryphantes octavus Hentz

Attus concolor nov. sp.—Length 35 mm., ceph. 15 mm. long, 1 mm. wide. Cephalothorax yellow-brown, eyes surrounded by black, eye-region blackish; abdomen mottled with gray and white; legs white, tips of joints and two rings on the femora blackish; base of palpus pale, last two joints dark; sternum gray; mandibles yellow, some golden hairs around anterior eyes. Cephalothorax widest a little behind dorsal eyes, eye-region a little wider behind than in front, dorsal eyes not much smaller than the lateral, eyes of second row a little nearer dorsal than lateral eyes. Anterior coxæ separated by more than width of lip; fourth leg much the longest, i, ii and iii subequal, their joints short; metatarsus iv, spined to base. Abdomen

but little longer than cephalothorax and slightly broader. The epigynum consists of a shallow pear-shaped depression, in the anterior portion of which is a small hole connected by a line each side with two similar holes in the posterior portion.

One female.

Epiblemum scenicum Clerk.
Icius mitratus Hentz
Marptusa familiaris Hentz
Saitis pulex Hentz
Habrocestum cristatum Hentz
" *cæcatum* Hentz.
Synageles scorpiona Hentz
Synemosyna formica Hentz

ON THE OCCURRENCE OF THE TACHINID GENUS HETEROPTERINA Macq. IN NORTH AMERICA.

By D. W. COQUILLETT, Washington, D. C.

In the Annales Soc. Ent. de France for December, 1888, on page 262, Bigot describes a Tachinid under the name of *Heteropterina spinulosa*, which he credits to North America; this is the first record of the occurrence of this genus in our fauna, and in the Transactions Amer. Ent. Soc. for June, 1892, page 133, Townsend discredits this generic reference, stating that the species in question probably belongs to *Plagia*. There is a probability, however, that Bigot was correct. I have recently examined specimens collected by Dr. Nason, in northern Illinois, which certainly belong to *Heteropterina* as defined by Brauer and Berganstamm, Schiner and Rondani. The form is a very striking one, owing to the great distance intervening between the very oblique hind cross-vein and the hind margin of the wing, the last section of the fifth vein being longer than the penultimate section; the bend of the fourth vein is furnished with a spurious vein which almost equals the apical cross-vein in length. In Townsend's table of Tachinid genera (l. c.) this genus would fall in couplet 46, but will be readily distinguished by the characters mentioned above. Judging from Bigot's description, his species differs from the one now before me by its wholly black abdomen and legs, besides in being nearly twice as large. The present species may be characterized as follows :

Heteropterina nasoni n. sp. ♂.—Head black, face and sides of front silvery white pollinose, frontal vitta grayish black, at its narrowest part less than one-fifth as wide as the front; frontal bristles descending nearly to middle of second antennal joint, the upper five in each row curving

backward, the others decussate; the front pair of ocellar bristles and the two pairs of orbital bristles directed forward; vibrissæ inserted slightly above the oral margin, only two or three bristles above each; pile on sides of face microscopic and very sparse; cheeks scarcely one-fifth as broad as the eye-height. Antennæ three-fourths as long as the face, first two joints yellow, the third black and less than one and one-half times as long as the second joint; arista black, thickened on its basal third; proboscis three-fourths as long as height of head, black, the labella and palpi yellow. Thorax black, gray pollinose, marked with three brownish vittæ; three postsutural bristles; scutellum black, gray pollinose, a small discal and three long marginal pairs of macrochætæ, the third pair decussate and not quite reaching the tips of the second pair. Abdomen yellowish, the extreme base and the greater portion of the fourth segment blackish; wholly gray pollinose except a transverse row of three shining blackish spots on the hind end of each segment, those on the fourth segment sometimes coalescing; an opaque black spot on the extreme sides of each segment except the first, sometimes wanting on the second; a marginal pair of macrochætæ on each of the first three segments, sometimes wanting on the first, and a marginal row of eight on the fourth; hypopygium shining black, toward its apex yellowish, projecting one-third its height below the plane of the venter, its tip furnished with a stout black claw, which projects forward; underside of the fourth abdominal segment considerably swollen. Legs black, the front and middle tibiæ yellowish, hind ones not ciliate; pulvilli about as long as the last tarsal joint. Wings grayish hyaline, veins brown, third vein bristly nearly to the small cross-vein, the others bare; calypteres white, halteres yellow.

♀.—Differs from the ♂ only as follows: front largely brassy yellow pollinose, extreme base of abdomen yellow, middle of second segment and nearly the whole of the two following ones blackish, all femora and tibiæ yellow, pulvilli about one-third as long as the last tarsal joint; genetalia not projecting. Length 3.6–4.3 mm.

Northern Illinois, four males and nine females collected from July to September, 1894, by Dr. W. A. Nason, after whom I take great pleasure in naming this interesting species.

ERRATA.

Page 148, fifth line from top, for there *read* them.
" 148, eighth line from top, for *Ceoropia* read *Cecropia*.
" 149, eleventh line from bottom, for *Prunes* read *Prunus*.
" 150, ninth line from top, for paper *read* pupa.

ENTOMOLOGICAL NEWS for May, was mailed April 27, 1895.

L'ABBÉ PROVANCHER.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

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L'ABBE PROVANCHER.

The late Abbé Provancher, whose picture we take pleasure in presenting to our readers in this number, was born in 1820, at Becancour, Quebec. His principal entomological work is the "Faune Entomologique du Canada," in three volumes, embracing the Coleoptera, Orthoptera, Neuroptera, Hymenoptera and Hemiptera. This was begun in 1874 and completed in 1890, and the enormity of the work will be better understood when we learn of the disadvantages at which the author was placed in being separated from necessary libraries, collections and co-workers in the field of Entomology. Notwithstanding these adverse conditions he bravely struggled on, and to-day his work stands as a monument to his assiduity. To be sure he made mistakes—we all do that—and has been criticised, perhaps too harshly, when the conditions he was obliged to face are considered. He conducted the journal, "Le Naturaliste Canadien," the publication of which was suspended, through lack of support, a short while previous to his death, after twenty volumes had appeared dating from 1869 to 1890. His labors were by no means restricted to Entomology, as he published a treatise on the Flora of Canada, treatises on agriculture and travels, and his last work was entitled, "Les Mollusques de la Province de Quebec." He died in 1892, aged seventy-two years.

A NOTE ON THE INSECTS OF THE TORTUGAS.

By H. F. WICKHAM, Iowa City, Iowa.

The Tortugas Keys, or Dry Tortugas, as they are often called, are a cluster of low sandy islets lying fifty-four miles to the westward of Key West, and are practically on the southern limit of the domain of the United States. They rise from a bank of coral and coral sand about ten miles long northeast and southwest, and four or five miles in breadth. Barren in character, but little vegetation has obtained a foothold here excepting two or three species of bushes and such plants as have been set out by the few inhabitants who, in the capacity of government health officers or light-house employes, make these lonely little Keys their home. Some of the older trees were, however, planted by the garrison of Fort Jefferson during the time of the military usefulness of that now practically abandoned post.

But two of these islets are inhabited—Garden Key and Loggerhead Key; the former lies somewhat near the center of the group and is of some thirteen acres in extent most of which is enclosed by the walls of the fort, an immense and useless fortification once mounting scores of heavy guns, now rapidly going to decay and used only as a quarantine station against yellow fever posts. It was on account of quarantine regulations that the writer, in common with the other members of the "Bahama Expedition" from the State University of Iowa, just from Cuba, made an enforced visit to this collecting ground which would scarcely be chosen as a productive field by any entomologist in spite of the richness of the marine life in the vicinity.

What could one expect to find on these little sandy Keys lying such a distance from any large land area and dependent for their insect fauna upon the caprice of the wind, the drift of the Gulf stream or the accidental importations of man? Not much, certainly; and not much was found in the few hours that could be devoted to search for entomological booty on the narrow beaches and scant flora. The few captures are recorded, however, as a contribution to the knowledge of the fauna of a spot that has hitherto cut no figure in entomological literature.

Beginning on the 7th of June a few hours were spent each day in collecting, as opportunity offered for going ashore, until the 13th, and the scant list of beetles appended represents all that

could be accomplished by careful work along that line; the insects of other orders have not been fully identified, but were few in species and for the most part inconspicuous. A little Lycænid was the only butterfly seen, while the only bee was *Oxybelus emarginatus* Say. The ants were represented by *Camponotus tortuganus* Em., *Tetramorium cæspitum* Linn., *T. guineense* Fabr. and *Pheidole megacephala* Fabr. Among the Hemiptera we have *Murgantia histrionica* Hahn., which was very common in one or two spots, *Chlorocoris loxopa* Uhler, *Goniaenotus marginipunctatus* Wolff and *Pangæus bilineatus* Say. Only a few species of Orthoptera were found, none of which are yet identified. They are mostly immature individuals taken by beating, though one is an Acridiid of considerable size. The above identifications are the work of Messrs. Ashmead, Heidemann and Pergande; those of the beetles, which follow, are due to Dr. Horn, Mr. Schwarz and the writer, and the list includes all the species found, which, while few in number, represent twenty families. They are:

Selenophorus pedicularius Dejean.

Homalota sp.

Cafius bistriatus Er.—Along the beach under sea-weed.

Cafius sericeus Holme (?).—With the preceding, less common.

Cafius (?) sp.—One specimen.

Bledius basalis Lec.

Briaraxis depressa Brend.—Under rubbish on the beach. So far as known this is confined to these Keys.

Actinopteryx fucicola Allib.—Under sea-weed on beach.

Psyllobora nana Muls.—Not uncommon on bushes; found also at Key West and in the West Indies.

Scymnus bivulnerus Horn.—With the preceding.

Symbiotes (?) sp.—Found on the vessel while anchored here. Mr. Schwarz writes that it agrees well with descriptions and figures of *S. pygmæus*.

Corticaria sp.? indet.—Beaten from bushes, common throughout South Florida.

Saprinus ferrugineus Mars.—Very common under the carapaces of two turtles which we laid out to dry.

Pseudebæus oblitus Lec.—Common on bushes on Loggerhead Key.

Necrobia rufipes Fabr.

Petalium bistriatum Say.—Beaten from bushes with the next.

Catorama punctulata Lec.—Not common.

Ligyrus gibbosus DeGeer.—A dead specimen was picked up on Loggerhead Key, another on Rush Key.

Elaphidion truncatum Hald.—A specimen agrees with Haldeman's description except that the frontal line is quite distinct.

Blapstinus opacus Lec.—Common under boards and rubbish.

Phaleria longula Lec.—Very common, found by hundreds along the beach under sea-weed or dead animals.

Phaleria picipes Say.—With the preceding, but much less common.

Hymenorus convexus Casey.—Common, especially on Castor Bean.

Oxacis sp. n.—A few taken from heads of sea-oats.

Xylophilus ventricosus Lec.

Artipus floridanus Horn.—Extremely common on bushes, also occurs over all southern Florida and in the Bahamas.

Cryptorhynchus sp —On the beach.

Dryotribus mimeticus Horn.—Under stones or boards on the beach.

Macrancylus linearis Lec.—Under logs on beach, not rare.

A glance at the above list will show that these little islands have evidently derived their fauna from the same source as the coast of the mainland of southern Florida and the outlying Keys along the shore. Several of the species were taken also in the Bahamas and further attention to this matter will be given when the entire collections made by the writer in the British West Indies are worked up.

———o———

NAMES,—SCIENTIFIC *vs.* COMMON.

By FREDERIC ORMONDE.

The question as to whether insects shall be determined by their scientific or their common names, has been a field for much discussion among entomologists and the entomological journals. Yet, the advocates of the system of common names do not appear to have gained much in return for their efforts. And why should they achieve favorable results when their only argument in favor of this scheme rests in the assertion that descriptions would be more lucid and acceptable to the general reader

if the common or popular appellation were given in place of the more technical or scientific term.

Here I would ask: are the masses to be educated in entomology as a science, or is entomology to be given to the public as a subject, whose chief characteristics are to be recognized in mythical absurdities and superstitious vagaries?

A species may have a popular name in one section and in another be known by one different from the first, and in yet another by one entirely distinct from either, and so on until we find one little insect laden with a very unique assortment. Were an entomologist to attempt to acquaint himself with all of them, with the intention of using them as a preface to his descriptions, he would undertake a task colossal in its magnitude, and one that would require vast folios in print.

Now, the simplest way out of such a confusing maze is to adhere to the scientific basis of nomenclature. Let each species be known by a scientific title. One with a plain and connected meaning that will stand forever, and everywhere, unless it be abolished in its own science, in its advancement. We find in several instances that a species is known by more than one scientific term. But as we advance those mistakes are very quickly remedied, and are less apt to occur in the future. Providing we should, when we are of the opinion—finding that it does not correspond to such description as we have at hand—that we have made a new discovery, weigh well the matter, investigate thoroughly; instead of hastening to apprise the world that we have unearthed something new, and finding later that it was a mistake, that we had only argumented that burthen of confusion which we strive so hard to lighten.

It is very important that we should pause, be sure we are right and then go ahead. To avoid possible confusion, let derivations be in strict accord with grammatical analogy. Classify in a learned language, for popular idioms are in a state of constant fluctuation. Classify according to a scientific basis, the practise of naming from persons who first describe should be avoided wholly and entirely.

Such a nomenclature, ought, I think, be discarded, as unbecoming the gravity of men, who should treat their science as a science and not descend to childish denominations. If a man's works entitled him to it, his name will be handed down to posterity, an object of veneration and respect, without being hung to an insect. If not, "*aliena optimum frui insania*"

ARIZONA ANTS.

By Dr. H. W. FENNER, Tucson, Ariz.

No. 1. *Pogonomyrmex rugosus* Em. (var.).—Large and numerous nests, one large opening two to four inches in diameter on surface level, found none elevated; a disk was cleared around each nest from two to twelve feet in diameter; ants out very early in the morning and all in by sun down; do not close nests, but have a great many sentries just within the opening; ants busy carrying seeds.

No. 2. *Pogonomyrmex californica* Buckley.—Quite numerous through town; have one opening on surface level with excavated dirt all taken to one side. When disturbed all disappear within nest; out at work early in morning, all in nest at noon and out again in afternoon; close nest at night; are always busily engaged carrying seeds, the husks of which are afterwards thrown out. These ants, while in active motion, carry abdomen erect, at right angle (nearly) to the body.

No. 3.—Have from one to three openings to nest, all observed were on surface level and surrounded by irregular rings of excavated dirt; one to three columns of ants following certain roads working from each nest; observed one column for three weeks which, for the whole time, followed the same road to a fig tree.

No. 4. *Pheidole megacephala* Rog. (var.)

No. 5. *Pogonomyrmex subnitidus* Em. (var.).—Very small colonies, but quite numerous, easily alarmed; had to dig up nest in order to catch any. Have small mounds on one side of nest. Habits not observed.

No. 6. *Aphænogaster pergandei* Mayr.—Large colonies, single opening on surface level, excavated soil or gravel, irregularly around nest. Habits not noted.

No. 7. *Aphænogaster sonoræ* Perg.—Large colonies, nest very slightly elevated with two or three openings, from one to three inches in diameter; very irregular in outline; observed some colonies where there seemed to be no elevation to nest. Ants occupied in gathering seeds and pieces of grass.

Nos. 8 and 9. *Pheidole* near *fabricatus* Em.—Evidently major and minor; very small nests and colonies; worked in columns. The major very slow and sluggish; minor active and belligerent.

No. 11. *Pogonomyrmex californica* Buckley.—Small colonies

and nests; carries abdomen erect, same as No. 2, and, except in size, nest appears about same as No. 2. Habits not observed.

No. 12. *Cremastogaster* sp.—Nest raised about five inches in diameter, around root of small bush, very easily alarmed and hard to catch. Habits not observed.

No. 13. *Aphænogaster sonoræ* Perg.—The large ants in box were found always single, and were picked up in various places, and at different times; all other ants seemed to be very anxious to capture them from the largest to the smallest; one of the large ants had small ones attached to her legs. and the large ones also pulling her along (all of which I have left in the box).

No. 14.—Small crater nest, very much resembles No. 1, and were in same vicinity, only I observed them close up for the night at 5 P. M.

No. 15. *Aphænogaster sonoræ* Perg.—Very large colonies, nests occasionally slightly elevated, but some appear to be even depressed, from one to four very large openings, three or four inches in diameter. Ants very active and belligerent. Habits not observed, do not close up at night.

No. 16 *Atta versicolor* Perg. var.—Crater nests in sandy places; nest very regular and beautifully made as to external appearance, often four or five close together. Habits not observed.

No. 17. *Pheidole megacephala* Rag. var.—Large colony, nest under a board, travel in columns when a supply of food is found; after a rain many were busy trying to pull winged ones to nest.

Nos. 18, 19, 20. *Pheidole* sp., probably same as No. 9.—Collected after a rain; unable to place them as to nest, etc.

No. 21. *Atta versicolor* Perg. var.—Large colonies, opening on surface level; at 5 A. M. observed two columns of ants going to two small bushes, cutting off the leaves and carrying same to nest; outside of nest was quite a quantity of old leaves of same variety; at 8 A. M. nest was closed, and all had ceased work and were in nest; at 4 P. M. same. Next morning the two bushes were nearly cleaned from all leaves examined and found them all covered with some sweetish, sticky substance (a few of leaves enclosed in box). In order to catch a few specimens had to dig in a portion of the nest, *when I found that at least one-third of the ants had no abdomens, both of the large and small ones. Those without abdomens appeared just as active as the others*, and immediately commenced work with the others to repair nest. Did not

have time or tools to dig deeply in nest for further observation, but when at work, early in the morning, all of those outside had abdomens.

No. 22.—Unable to find nest; they were quite numerous on ground and quite active.

No. 23. *Solenopsis geminata* Fab.—Very small, slightly elevated nests; ants traveling in columns.

No. 24. *Myrmica* sp.—Could not find nest.

No. 25. *Myrmecocystus semirufus* Em.—Nest hard to find, only observed two, which were simply round holes in ground with no evidences of excavations on outside; one hole was about one-half inch in diameter and the other three-fourths inches. The ants were extremely active, and, not being belligerent, were extremely hard to capture. Habits not noted.

No. 27. *Cremastogaster brevispinose* Mayr. var.—Large colonies; one nest observed under root of cottonwood tree; immense numbers of ants traveling in columns in many directions, but sluggish and slow in movements.

No. 28. *Myrmecocystus mexicanus* Slave (var.)—Small, raised nests; ants very active. Habits not observed.

No. 29. *Pogonomyrmex californica* Buckley.—Habits and nests exactly like No. 2, and appear to me to be the same, except, possibly, a lighter color, and these were very willing to fight, and No. 2 would not.

———o———

TYPES IN THE NEUMOEGEN COLLECTION.—I.

WITH A FEW NOTES THEREON.

By Dr. RODRIGUES OTTOLENGUI.

The death of Mr. Berthold Neumoegen having ended his life work on his great collection, and the final disposition of it being yet in doubt, I have conceived that it might be of interest to entomologists, to prepare the following list of the "type specimens" contained in his cabinets. Where a sexual sign, or signs, appear after a name, it means that such specimens carry the "type" label. Signs in parenthesis ( ) indicate that such additional representatives of the species are in the collection, and the absence of such signs means that there are no specimens except the type, or types.

I have also appended notes which seem interesting, a few of

which depend upon manuscript left by Mr. Neumoegen. The types reported here are certainly present, and labeled "type," as I have personally seen them. It is possible, however, in looking through so many cases filled with insects, that I have overlooked a few, though this is not likely. As a tribute to conscientious collecting, I have appended the names Morrison or Doll, where either of these two fine hunters have taken new species.

NYMPHALIDÆ.

Danais archippus var. *fumosus* ♀ Hulst. Long Island.

This was presented to Mr. Neumoegen by Dr. Hulst, and Mr. Neumoegen considered it merely a specimen stained by cyanide. But I have three specimens sent to me from Denver, Col., which were not killed with cyanide, having been captured by an amateur.

Argynnis liliana ab. *baronii* ♂ Edw. California.
Argynnis atossa ♀ Edw. Southern California.
Melitæa nympha ♂ (♂♀♀) Edw. Arizona, Morrison.
Melitæa perse ♂ (♂♀♀) Edw. Arizona, Morrison.
Melitæa perse var. *suffusa* ♂ Edw. Arizona, Morrison.
Melitæa chara ♂ (♂♀♀) Edw. Arizona, Morrison.
Melitæa phæton ab. *phæthusa* ♂ Hulst. Long Island.
Limenitis weidermeyerii ab. *sine-fascia* ♀ Edw. Arizona, Doll.
Ancæa morrisonii ♂ Edw. Arizona, Morrison.

LYCÆNIDÆ.

Chrysophanus hypophlæas var. *fulliolus* ♂ Hulst. Long Island.

The red of the primaries is replaced by yellowish. I should consider this an aberration rather than a variety.

PAPILIONIDÆ.

Calopsila satira var. *floridensis* ♂♀ Neum. Florida.
Calopsila argante var. *maxima* ♂♀ Neum. Florida.
Parnassius sminthеus var. *nanus* ♂♀ Neum. British Columbia.
Papilio rutulus var. *arizonensis* ♂♀ Edw. Arizona, Doll.

Mr. Doll, near Prescott, Ariz., found a number of *Papilio* larvæ feeding on ash. He tied a bag over the limb of the tree and returned five weeks later, when he collected the pupæ. They proved to be mainly *Papilio daunus*, but among the imagines were a few of this rich variety of *rutulus*.

HESPERIDÆ.

Copœodes myrtis ♂ (♂♀) Edw. Tucson, Ariz., Doll.
Pamphila lasus ♂ Edw. Arizona, Morrison.

Pamphila bellus ♂ Edw. Arizona, Morrison.
Pamphila lunus ♂♀ Edw. Arizona, Morrison.
Pamphila cestus ♂ Edw. Arizona, Morrison.
Amblyscirtes cassus ♂ (♀) Edw. Arizona, Doll.
Amblyscirtes nanno ♂ (♀) Edw. Arizona, Morrison.
Amblyscirtes celia ♂ Skinner. Texas.

Recently presented by Dr. Skinner.

Nisoniades afranius ♂ (♀) Edw. Arizona, Morrison.

This "type" label is in handwriting of Mr. Edwards, yet in Smith's Check List the name is credited to Lintner.

Nisoniades tatius ♂ Edw. Arizona, Morrison.
Nisoniades clitus ♂ (♂♀♀) Edw. Arizona, Morrison.
Pholisora elis ♂ Edw. Arizona, Morrison.
Eudamus hippalus ♂ (♂♀♀) Edw. Arizona, Morrison.
Eudamus drusius ♂ Edw. Arizona, Morrison.
Eudamus outis ♂ (♀) Skinner. Texas.

This pair recently presented by Dr. Skinner.

Megathymus neumoegenii ♂♀♀ Edw. Arizona, Doll.

About ten miles from Prescott, Ariz., Mr. Doll noticed a rocky cliff rising sheer from the roadside, and high up on its side some butterflies dancing about. He climbed slowly up, about thirty feet, and captured a specimen in his net, only to find its wings utterly despoiled when he took it from his net upon descending. On the following day he revisited the spot, having arranged a heavy pad of cloth about the neck of a killing bottle, so that it would not be broken when suddenly pressed against the rock. Slowly he climbed up the sides of the cliff, and after two hours' hard work had "bottled" seven specimens of this beautiful species, which were sitting on the bare rocks, but oh, so shy!

SPHINGIDÆ.

Lepisesia circæ ♂ Hy. Edw. Georgia.
Dilophonota festa ♂ Hy. Edw. Texas.
Sphinx separatus ♂♀ (♂♀) Neum. New Mexico.
Sphinx elsa ♂♀ Strecker. Arizona, Doll.
Sphinx dolli ♂ Neum. Arizona, Doll.

SESIIDÆ.

*Larunda solituda** ♂ Hy. Edw. Texas.
Larunda palmi ♀ (♂♀) Neum. Arizona.
Alcathœ caudatum var. *walkeri* ♂ Neum. Long Island.

* Species thus marked also appear in the Edwards collection, American Mus. Nat. Hist., Central Park, New York, the *types* having been divided.—Ottolengui.

Trochilium minimum ♂ Neum. Colorado.
Trochilium californicum ♀ Neum. California.
Sciapteron cupressi ♀ (♂♀) Hy. Edw. Colorado.
Sciapteron seminole ♀ Neum. Florida.
Sciapteron castaneum ♀ Hy. Edw. Texas.
Sciapteron præcedens ♂ Hy. Edw. North Carolina.
Sciapteron scepsiformis ♂ (♂♀) Hy. Edw. Texas.
Sciapteron dolli ♂ Neum. New Jersey, Doll.

The type ♀ is in the Doll collection.

Albuna vitrina ♂ Neum. Fort Calgary, British Columbia.
Sannina exitiosa var. *luminosa* ♂ Neum. Long Island, Doll.

A type ♂ is in the Doll collection.

Sesia præstans ♂ Hy. Edw. Washington.
Sesia bollii ♂ Hy. Edw. Texas.
Sesia perplexa ♂ Hy. Edw. Texas.
**Sesia impropria* Hy. Edw. Washington.
**Sesia sexfasciata* ♀ (♂♀) Hy. Edw. Texas.
Sesia imitata ♂ (♂♀) Hy. Edw. New Jersey.
Sesia morula ♂ Hy. Edw. Texas.
**Sesia koebelei* ♂ Hy. Edw. Arizona.
**Sesia hemizonæ* ♀ Hy. Edw. Nevada.
**Sesia opalescens* ♂ (♂♂) Hy. Edw. Nevada.
**Sesia madariæ* ♂ Hy. Edw. California.
Sesia candescens ♂ Hy. Edw. California.
Sesia nicotianæ ♂ (♀) Hy. Edw. Texas.
Sesia tecta ♂ (♂♀) Hy. Edw. Arizona, Doll.
**Pyrrhotænia animosa* ♂♀ Hy. Edw. Arizona, Morrison.
Pyrrhotænia texana ♂ (♂♀) Hy. Edw. Texas.
Pyrrhotænia subærea ♂ Hy. Edw. Arizona, Morrison.
**Carmenta aureopurpurea* ♂ (♂♀) Hy. Edw. Texas.

THYRIDÆ.

Plathyris granulata ♀ Neum. Arizona.

AGARISTIDÆ.

Alypia hudsonica ♀ (♂♀) Hy. Edw.

A note left by Mr. Neumoegen says that this species is a synonym of *A. sacramenti* G. and R., and also of *A. langtoni*. Another note declares that *A. gracilenta* Graef is a synonym of *A. octomaculata*, whilst Dr. Charles McKnight has expressed the opinion to me that *A. matuta* Hy. Edw. is also identical with *octomaculata*. Another note by Mr. Neumoegen asks whether *A. maccullochii* is not the same as *A. lorquinii*, a query which I should answer affirmatively. Evidently this genus needs studious revision.

Alypia desparata ♂ Hy. Edw. Mexico.

This species is not in Smith's Check List, but Mr. Doll has specimens from Texas. From the shape of the wings I should say that it is not an *Alypia*.

Edwardsia brillians ♀ Neum. Texas.

This insect is an important one, standing as the type both of genus and species, and being, as far as I know, unique.

SYNTOMIDÆ.

Lycomorpha latercula ♂ (♂♂) Hy. Edw. Arizona, Morrison.
Lycomorpha constans var. *sancta* ♂♀ Neum. and Dyar.

This is a *Tripocris*.

PYROMORPHIDÆ.

Pyromorpha fusca ♂ (♂♀) Hy. Edw. Arizona, Morrison.
Pyromorpha rata ♂ (♂♀) Hy. Edw. Arizona, Morrison.

NYCTEOLIDÆ.

**Earias obliquata* ♂ Hy. Edw. Texas.

LITHOSIIDÆ.

Hyproprepia inculta ♂ (♂♂♀) Hy. Edw. Type from Arizona.
Hyproprepia miniata var. *subornata* ♂♀ Neum. and Dyar. Texas.

This insect was described under the above name in "Canadian Entomologist," vol. xxv, p. 124, and it is written *subornata* in Mr. Neumoegen's Check List, but it is labeled *inornata*, evidently an error, but worth noting, as it is on the type.

Bruceia pulverina ♂♀ Neum. Colorado.

These are types of the genus as well as of the species.

(To be continued.)

———o———

THE STUDY OF THE FORMICIDÆ OF LAWRENCE, MASS.

By GEORGE B. KING.

All of the following species were found in a circle, the radius of which was five miles:

Camponotus pennsylvanicus DeGeer.—Living in old pine stumps and one colony was found at the roots of a living hard pine tree. Not a very common species.

Camponotus americanus Mayr.—Living under stones, a small number of an undetermined species of *Lasius* was found with them; there was also a large colony of *Termes flavipes*, and a

very large colony of *Solenopsis debilis* in the nest with them; this is not a very common ant here. I also find with them a mite *Gamasus* sp. L., parasitic upon this ant.

Camponotus pictus Forel.—Living in a decayed hard pine stump, a very large colony July 8th. They were winged specimens at this time, with cocoons and larvæ of various stages of development; this is quite a common species.

Camponotus castaneus, var. *americanus*.—Lives under stones. I have as yet only found one colony. This one I found April 28, 1894, the males and females having wings; they must have hibernated in this state through the Winter.

Camponotus sp. hybernating under the bark of dead pine trees, March 18, 1894.

Formica fuscata.—Living under stones; is quite a common species. I have found some very pretty mites with them, which are as yet undetermined; two different species of Coleoptera are found with them—*Blapstinus mœstus* and *Megilla maculata*. This last species was of a very much faded color, quite small, and had a very peculiar deformity of the right elytron, it being nearly a sixteenth of an inch shorter than the left one, also the center row of spots does not unite properly, being drawn out of shape in proportion to the shortness of the elytra. This same colony of ants had three *Termes flavipes* with them.

Formica obscuripes Forel var.—Living in mounds and under stones, and is not very common. I find two different species of mites upon this ant. A species of *Gamasus*, and the other a *Uropoda* sp. I have not been able as yet to locate where the *Gamasus* species attacked the ants, but the *Uropoda* species fasten itself invariably to the intermediate pair of legs at the base of the tarsal joint at the tibia.

Formica exsectoides Forel.—Living in mounds; not common.

Formica nitidiventris Em.—Living under stones, a very common species with one colony. I found living with them at one side of their nest *Prenolepis parvula*, males and females were winged, May 4, 1894. A *Gamasus* and *Uropoda* sp. of mites were on these ants.

Formica nitidiventris Em. var.—Lives under stones, and is quite common, and is parasited with *Uropoda* mites.

Formica subsericeus Say.—Living in mounds and under stones. *Uropoda* mite is on this ant quite commonly.

Formica pallida fulva, var. of *nitidiventris*. *Uropoda* and another undetermined mite are found on these ants; not very common.

Formica neogates Em.—Lives under stones, and is not common.

Formica integra Nyl.—Lives under stones, not common.

Formica sp.—Not a common species, and have upon them an undetermined mite.

Lasius niger.—Lives under stones, very common.

Lasius neoniger Em.—Lives under stones, very common ; in one of their nests I found a larva of *Galerita* sp. It was in a small hole by itself; the mite *Uropoda* sp. is found on this ant.

Lasius interjectus Neyr.—Lives under stones, very common. *Solenopsis debilis* lives at one side of the nest with them.

Lasius claviger Rog.—Lives under stones, very common. *Solenopsis debilis* lives at one side of the nest with them ; they had with them, May 24, 1894, two different species, of Aphids, a species of *Forda*, and a mealey bug of *Westwoodia*, in large numbers; this ant is also parasited with the *Gamasus* sp.

Lasius species undetermined, found under stones with *Camponotus americanus;* very rare.

Lasius species not determined, found under stones occasionally, parasitized by *Gamasus* species.

Aphænogaster fulva Rog.—Lives under stones, not very common.

Tapinoma sessile. found living upon the upper outside edge of a robin's nest upon an apple tree, ten feet from the ground. The nest had three eggs in it at the time, and must have been an old nest, because there were nearly full-grown larvæ of the ants at this time, July 8, 1894. It is also found occasionally under stones.

Cremastogaster lineolata Say.—Lives under stones and very common; also found in stumps and under wood piles, and in bark of pine trees. I found one nest under a large cord wood stick in the woods; this colony had six live shells of *Zonites arboreus* Say. The ants were all collected around them apparently feeding from the slimy substance produced by the snails in the shells. I have also found some of the empty shells of *Valonia pulchella* nule with this ant.

Prenolepis parvula Mayr.—Living under stones, a common species; a mite *Uropoda* was found on this ant.

Solenopsis debilis Mayr.—Living under stones most of the time with other ants, and at one side of their nest, and have their own roads and galleries. I have a small undetermined mite which is parasitic upon the larva of this ant. It fastens itself to the larva midway between the thorax and abdomen, and can only be determined there by the use of a lens, it is so near the color of the ant's larva.

Solenopsis debilis Mayr. var. is met with occasionally; has same habit of living at one side of nest with other species of ants.

In the determination of the above species of this group I am indebted to Mr. L. O. Howard, Mr. Theo. Pergande and Mr. C. L. Marlatt, of the U. S. Department of Agriculture, Washington, D. C., and to the Academy of Natural Sciences, of Philadelphia. In the study of the American Formicidæ, the American student has many difficulties to encounter, one of which is suitable literature giving the descriptions of the species already found, which seems to be very hard to obtain, most of the literature in this line being either French or German. In studying the literature of this group I have found but very few descriptions sufficiently explicit to enable one to determine the species described. I have now over two hundred and fifty cards in my catalogue of American and English literature, pertaining to Formicidæ. I have still more ants of this district that are not yet determined, and in all probability will find more as I continue the search. So far as I have consulted the literature on ants, I find but two writers that mention anything upon mites being found with ants. The first one is by Asa Fitch, his First and Second Report of the Noxious Insects of New York, page 153, and the other is that of H. C. McCook, on the honey ants, page 68, and a third, which I quote from memory, by Lubbock, where he speaks of the intelligence of ants. My intention is to make a catalogue, as complete as I can, of the literature pertaining to our American Formicidæ and their hosts.

Termes flavipes is a very plentiful species in the locality in which I have been studying. I should say that there are nearly a thousand *Termes* nests in stumps, railroad ties and under stones, but I have not as yet heard of any material damage done by them, but I am of the opinion that if their progress is not checked by the aid of some of our Economic Entomologists, serious results will surely follow, and that in the near future.

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., SEPTEMBER, 1895.

ALTHOUGH this number of the NEWS comes out in September, the work of preparing it comes during the heated term and while our entomological friends are having a good time with net and bottle we are laboring in their behalf. Now is the time of year when we look over the collecting boxes of our friends to see what interesting captures they have made, or are getting our own material into shape to arrange for exchanges during the cold weather, which we hope may add many a fine species to the cabinet. The sources of pleasure to the insect hunter are numberless and without season; every time of year has its pleasures and advantages. Now is also the time when the larvæ rearing period is running into the time when we look for cocoons and pupæ, even if there are a few more leaves on the ground than in the Spring. We hope you all have a large amount of good material to go over and put into good condition either for the cabinet or for exchanges, and also that all have profited from their open-air exercise taken in their favorite pursuit. The benefits of the study of entomology are many, and all do not appear on the surface. A day spent with Nature is always well spent and cannot fail to bring a return, even if it is only by renewed vigor, from the influence of fresh air and sunshine.

PICTURES for the album of the American Entomological Society have been received from W. H. Patton, F. Rauterberg, Henry Shimer, M.D., H. K. Burrison, John Hamilton, M.D., George R. Pilate, H. C. Fall, C. S. McKnight, M.D., J. M. Aldrich. We have room for more.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

THE Associate Editor of the NEWS, Dr. P. P. Calvert, is studying abroad, and expects to be away about a year.

W. E GLADSTONE recently remarked: "I think that the neglect of natural history, in all its mult tude of branches, was the grossest defect of our old system of training for the young."

MELEOMA SIGNORETTI Fitch.—This curious lace-wing fly has not been recorded since Fitch described it; and no other species of the genus are known. Mrs. A. T. Slosson has lately sent me two specimens of it from Mt. Washington, N. H.—N. BANKS.

THE SECOND NUMBER of the "Transactions" of the American Entomological Society for 1895, contains the following papers: Studies in Coccinellidæ, by G. H. Horn, M.D.; Notes on Bees, with descriptions of new species, by Chas. Robertson; The Crabroninæ of Boreal America, by Wm. J. Fox. The third number, now in press, will contain the following papers: A Review of the Stratiomyia and Odontomyia of North America, by C. W. Johnson; The Species of Dineutes of America, north of Mexico, by C. H. Roberts; Descriptions of new Hymenoptera, by T. D. A. Cockerell; On the Larvæ of some Nematoid and other Saw-flies from the Northern Atlantic States, by Harrison G. Dyar; New Neuropteroid Insects, by Nathan Banks.

THE GLOW WORM'S LIGHT.—A contemporary mentions that photographs have before now been produced by the light from glow worms; in the examination of a particular insect, *Photinus coruscus*, which emits luminous rays, A. F. Miller has shown that the specimens examined did not seem to give out any blue or violet light, thus supporting Prof. S. P. Langley's conclusion that Nature produces the most economical kind of light, which may be supposed to mean that, as the insect has no need for photographic light, it does not produce it. It is, however, to be stated that photographic experiments have not been tried with this *Photinus*, so far as we are aware.—*Newspaper*.

THE BUTTERFLIES' FAD.

ELLA WHEELER WILCOX.

I happened one night in my travels
To stray into Butterfly Vale,
Where my wondering eyes beheld butterflies
With wings that were wide as a sail.
They lived in such houses of grandeur,
Their days were successions of joys,
And the very last fad these butterflies had
Was making collections of boys.

There were boys of all sizes and ages
Pinned up on their walls. When I said
'Twas a terrible sight to see boys in that plight,
I was answered: "*Oh, well, they are dead.*"
We catch them alive, but we kill them
With ether—a very nice way,
Just look at this fellow—his hair is so yellow,
And his eyes such a beautiful gray.

"Then there is a droll little darkey
As black as the clay at our feet,
He sets off that blonde that is pinned just beyond
In a way most artistic and neat.
And now let me show you the latest,—
A specimen really select,
A boy with a head that is carroty red
And a face that is funnily specked.

"We cannot decide where to place him,
Those spots bar him out of each class,
We think him a treasure to study at leisure,
And analize under a glass."
I seemed to grow cold as I listened
To the words that these butterflies spoke;
With fear overcome, I was speechless and dumb,
And then with a start—I awoke!

Our Dumb Animals.

ON May 19 I took a collecting trip to Eagle Rock, Orange Mountains, N. J., at which place there is a rail fence built along the road, on which, for the last two years, I have taken some different kinds of beetles, hiding in the joints, and in looking for these I took notice of some bore holes which I took for the work of *Scolytus* or Buprestidæ, but it gave me quite a surprise on this trip to find *Magdalis barbita* emerging from holes in a shellbark hickory post. The first one I thought nothing of, but after finding four more specimens in the same manner I made note of it, as it may

be something new to collectors. At the same time I would like to make a few remarks about finding *Dicælus purpuratus*, of which I took one this trip. I have at different times taken seven or eight, but never more than one specimen on a collecting trip. Last year I went collecting in the same locality for three successive trips and took one each time; all of these I found under very large stones, which I was hardly able to turn, and the rest I found under small bits of bark, hardly large enough to cover the beetle, and in every instance they were alone. I have taken *D. elongatus*, *D. dilatatus* and *D. teter*, and have always taken these in numbers. Now, how is it that I was unable to take more than one at a time of *D. purpuratus*? Would like to hear from some collector with more experience than I have.—EDWIN A. BISCHOFF, Newark, N. J.

ON a bright day near the end of July, 1893, a friend of mine, who is also an entomologist, came after me to go on a collecting trip with him to search for Lepidoptera larvæ in a cemetery near Brooklyn, N. Y. We succeeded well with larvæ of *Smerinthus* and *Eacles imperialis*. On our way home we passed a lilac and the gravel underneath showed droppings; we soon located the eaten leaves and found the peculiar larva of *Harrisimemna sex-guttata* shaking its head from side to side; the inch long hair on the head with the remains of the old skin on the end give them a strange appearance. This larva is not very common in this locality, and feeds on various plants, such as button-ball, inkberry and rose. I tried to locate another one in the vicinity when my friend called my attention to several defoliated branches on another lilac bush and a fine full-grown larva of *Citheronia regalis* had to wander into the satchel. This was our first knowledge of this species feeding on the lilac bush. On button bush they have been found by several collectors, but most have been taken from walnut, hickory, gum, persimmon, Oriental plane, etc. In 1893 I found, among fifty *Dolba hylæus*, that I had two larvæ which were black marked on their triangular heads. A scale fungus killed them along with half of my *hylæus*. In June, 1894, while collecting for larvæ and eggs of *hylæus* on *Ilax* (inkberry) I found four much paler eggs which I kept separated from the rest and they turned out four black heads and two of them emerged as imago of *Sphinx kalmiæ*, and two are yet chrysalids. I have never seen *Ilax* reported as a food-plant of this species. I took a hundred geometrid-like larvæ on sweet-fern. They were resting on the top branches and were hard to see in the bright sunshine; the larger were more like the stem in color, but much spotted lower against the stem; none were near the ground. They turned out to be the jet-black *Catocala antinympha*. I failed to preserve some larvæ, and learned, later from Dr. G. D. Hulst, that the larvæ had not yet been described. *Catocala* were quite common in July, 1894, but scarce in August. In one day I took forty-eight specimens with the cyanide bottle. Previous years I had difficulty in finding them, but now being acquainted with their habits and hiding places I have more success. They change their resting places several times a day, and in damp weather it is best to look for them near

the ground. Some trees seem to have a special attraction for them, such as dog-wood, or trees covered with vines or loose bark or moss. When I failed to find them in one locality I went to one or two others where some sort of attraction or other made them assemble here or there. As birds and bats (not to speak of squirrels) prey greatly on *Catocalæ*, as the numerous remains indicate, it may be variable winds direct their enemies to them and cause them to change their locality.—HERMAN MEESKE, Brooklyn, N. Y.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

RAMBLES IN ALPINE VALLEYS. By J. W. Tutt, F. E. S., editor of the "Entomologist's Record and Journal of Variation," vice-president of the City of London Entomological and Natural History Society, etc. This is an illustrated work of one hundred and eighty-eight pages, published by Swan, Sonnenschen & Co., London. "The book deals with the Italian side of the Mont Blanc Range, a locality that deserves to be better known, than it appears to be, to visitors to the Alps. No attempt has been made to go deeply into scientific technicalities, but I have tried to explain as simply and clearly as possible the scientific bearings of some of the many facts which came under my notice during a holiday spent in that region." This book treats of the beauties of Nature in its various phases: the glorious mountains, the beautiful valleys, the rushing streams, and, in addition, the more animate part of Nature. Many interesting facts are brought out and dwelt upon in relation to the flora and fauna. The entomologist will find much of interest about his or her favorites, and we can heartily recommend Mr. Tutt's book. It breathes the spirit of Nature's poetry in prose, and such books do much to stimulate the study of all that is lovely in Nature.—H. S.

1. ANNALES AND MAGAZINE OF NATURAL HISTORY, sixth series, No. 89.—On the specimens of the genus *Cutiterebra* and its allies (family Oestridæ) in the collection of the British Museum, with descriptions of a new genus and three new species, E. E. Austen (with pl. xiii). Descriptions of new Coleoptera from New Zealand, Thos. Broun. On the Cis-

telidæ and other heteromerous species of Japan, G. Lewis. Note on the genus *Goniopleura* Westwood, with the description of a new species, C. J. Gahan. Description of a new species of butterfly from Taganac Island, northeast Borneo, H. G. Smith. ——No. 90.—Insects collected by Messrs. J. J. Quelch and F. McConnell on the summit of Mount Roraima, C. Waterhouse. Observations on the supposed semi-aquatic Phasmid, *Cotylosoma dipneusticum*, W.-M., C. Waterhouse.——No. 91.—Some new species of Odonata of the "Legion" *Lestes*, with notes, Robert McLachlan. Note on the Japanese Rhipidoceridæ: a new genus and species, G. Lewis. Descriptions of some new species of Heterocera from tropical America, Herbert Druce. On some Coccidæ obtained by Mr. C. A. Barber in the island of Antigua, W. I., T. D. A. Cockerell. New bees of the genus *Halictus* from New Mexico, U. S. A., T. D. A. Cockerell. On the Dascillidæ and malacoderm Coleoptera of Japan, G. Lewis. Description of a new species of butterfly of the genus *Amauris* obtained by Mr. Scott Elliot in East Central Africa, A. G. Butler.

2. THE ENTOMOLOGIST. London, May, 1895.—*Emmelesia tæniata* (with illustration), J. B. Hodgkinson. On the causes of variation and aberration in the imago stage of butterflies, with suggestions on the establishment of new species, Dr. M. Standfuss. Rhopalocera in the Guildford District, W. Grover. African Rhopalocera, Philip de la Garde. A catalogue of the Lepidoptera of Ireland, W. F. deV. Kane.——June—On the re-arrangement of the Fabrician genus *Colias*, and the proposal of a new genus of Pierinæ, J. Watson. Notes on *Onthophagus* Latr., with corrections of nomenclature and a description of a new genus, J. W. Shipp.

3. LE NATURALISTE. Paris, No. 196.—Description of new Coleoptera, M. Pic.——Nos. 198, 199.—Monographic essay on the Coleoptera of the genera *Pseudolucanus* and *Lucanus*, M. Planet.

4. BULLETIN DU MUSEUM D'HISTOIRE NATURELLE. Paris, 1895, No. 3.—The *Homalosoma*, Carabidæ of the tribe Feronini, J. Künckel d' Herculais. Note on Homoptera of the genus *Flatoides* Guérin, C. Brongniart. On the Arachnida collected in Lower California by M. Diguet, E. Simon. Description of new Coleopteron of a the family Tenebrionidæ (*Centorus bedeli* n. s.), P. Lesne. Origin and formation of the false stigmata in the Nepidæ (Hemiptera), M. J. Martin.

5. BULLETIN DE LA SOCIETE IMPERIALE DES NATURALISTES DE MOSCOU, 1893, No. 3.—Two new Aphids from south Russia, N. Cholodkovsky.

6. LE NATURALISTE CANADIEN, xxii, No. 5 (May, 1895).—Lepidoptera of Sherbrooke and neighborhood of that city, P. A. Bégin. The last descriptions of L'Abbe Provancher.

7. PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES (2), iv, part 2.—The Odonata of Baja California, P. P. Calvert. On the Diptera of Baja California, including some species from adjacent region, C. H. Tyler Townsend.

8. ZEITSCHRIFT FUR WISSENSCHAFTLICHE ZOOLOGIE. Leipzig, lix, 2, 1895.—On the amitotic nuclear division in the ovaries of Hemiptera, F. Preusse.——lix, 3.—Contributions to the knowledge of the developmental history of the scorpions, II, A. Brauer. Contributions to the knowledge of the lower Myriapoda, P. Schmidt.

9. PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, iii, No. 4.—Some important structural characters in the classification of the parasitic Hymenoptera, W. H. Ashmead. On the genus *Pelacinella* Westwood, . . . ibid. On the genus *Barycnemis* Foerster, ibid. *Lasiognatha*, a new and remarkable genus in the Ichneumonidæ, ibid. Discovery of the genus *Elasmosoma* Ruthe in America, ibid. A leaf beetle of the golden rod, F. H. Chittenden. On the nesting habits of the digger wasp, *Bembex cinerea*, D. W. Coquillett. Obituary notice of Dr. Geo. Marx, L. O. Howard. Notes on the geographical distribution within the United States of certain insects injuring cultivated crops, ibid. *Arrhenophagus* in America, ibid. Further notes on the Codling Moth, C. L. Marlatt. The American species of *Scolioneura* Knw., ibid. The hemipterous mouth, ibid. The hibernation of Nematids, and its bearing on the inquilinous species, ibid. Notes from California, results of Mr. Kaebele's second mission to Australia, C. V. Riley. On oviposition in the Cynipidæ, ibid. List of the entomological writings of George Marx. Notes on *Nomaretus*, . . . ibid. Notes on the distribution of some injurious insects, F. H. Webster.

10. COMPTES RENDUS HEBDOMADAIRES DES SEANCES DE L'ACADEMIE DES SCIENCES. Paris, t. cxx No. 18.—Comparative study of the odoriferous apparatus in the different groups of Hemiptera Heteroptera, Kunckel d'Herculais.——No. 19.—On the brown pigment in the elytra of *Curculio cupreus*, M. A. B. Griffiths.

11. THE INTERNATIONAL JOURNAL OF MICROSCOPY AND NATURAL SCIENCE. Bath, January, 1895.—Predacious [sic] and parasitic enemies of Aphides (including a study of hyper-parasites), pt. 2, H. C. A. Vine.

12. BULLETIN FROM THE LABORATORIES OF NATURAL HISTORY OF THE STATE UNIVERSITY OF IOWA, III, 3.—On the larvæ of three Coleoptera, H. F. Wickham. Nicaraguan Orthoptera, Lawrence Bruner.

13. BIOLOGIA CENTRALI-AMERICANA, Part cxxi, March, 1895.—Arachnida-Araneidea, pl. 17, O. P. Cambridge. Coleoptera, pp. 313-336, G. C. Champion. Hymenoptera, pp. 345-360, P. Cameron. Lepidoptera-Rhopalocera, pp. 385-400, pl. 85, F. D. Godman and O. Salvin. Lepidoptera-Heterocera, pp. 185-200, H. Druce. Rhynchota-Homoptera, pls. 4, 5, W. W. Fowler.

14. CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION (Ent. Div.), Bulletin No. 93, May, 1895.—The cigar-case bearer in western New York, M. V. Slingerland.

15. KNOWLEDGE, xviii, No. 116. London, June, 1895.—The colors of butterflies, C. F. Marshall.

16. ICONES ORNITHOPTERORUM, R. H. F. Rippon, pts. 6, 7. London (received June 4, 1895).

17. ZOOLOGISCHER ANZEIGER. Leipzig, No. 476.—Aphorisms on the biology, morphology, arrangement of genera and species of the Diplopoda, C. Verhoeff.——No. 477.—On the phylogeny of the Lepidoptera, A. S. Packard.——No. 478.—The bleeding of the Coccinellidæ, K. G. Lutz

18. VERHANDLUNGEN DER K. K. ZOOL.-BOT. GESELLSCHAFT IN WIEN, xlv, 4 heft.—The ant and termite guests of Brazil, E. Wasmann, part 1, with an appendix by A. Forel.

19. MONOGRAPH of the Pseudophyllidæ, by C. Brunner von Wattenwyl, Wien, 1895; text in 8vo., pls. 4to.

20. BULLETIN OF THE MUSEUM OF COMPARATIVE ZOOLOGY, xxxvii, 1.—Spermatogenesis of *Calopterus femur-rubrum* and *Cicada tibicen*, E. V. Willcox.

21. AMERICAN NATURALIST. Philadelphia, June, 1895.—The mouth-parts of Lepidoptera, V. L. Kellogg.

22. TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1895, part 2.—Contributions to a knowledge of the African phytophagous Coleoptera, pt. i, M. Jacoby. On some new species of butterflies from tropical and extra tropical South Africa, R. Trimen. Notes on Indian ants, G. A. J. Rothney. On the heteromerous Coleoptera collected in Australia and Tasmania by James J. Walker, . . . with descriptions of new genera and species, G. C. Champion. Descriptions of new Heterocera from India, G. F. Hampson.

23. CANADIAN ENTOMOLOGIST, June, 1895.—The insect fauna of the Sudbury District, Ontario, J. D. Evans. Notes on collecting, and names new to the Canadian list, J. A. Moffatt. The Coleoptera of Canada, pt. x, H. F. Wickham. On two new species of *Platycerus*, T. L. Casey. Notes on Hymenoptera, W. H. Harrington. *Eudryas stæ. Johannis Redivivus*, A. R. Grote. Remarks on *Apateloides* suggested by an article by Mr. Schaus, H. G. Dyar. A few points in collecting Ichneumonidæ, G. C. Davis. Preliminary studies in *Siphonaptera*—v, C. F. Baker.——July, 1895.—List of Coleoptera collected at Massett, Queen Charlotte Islands, B. C., J. H. Keen. Entomological notes, J. A. Moffat. The insect fauna of the Sudbury District, Ontario, J. D. Evans. Spring collecting in Alberta, F. H. Wolley Dod. A new *Aegiale* (*Megathymus*), H. Skinner. The Coleoptera of Canada, xi, H. F. Wickham. Preliminary studies in *Siphonaptera*, vi, C. F. Baker. Descriptions of the larvæ of certain Tenthredinidæ, H. G. Dyar.

24. PROCEEDINGS OF THE U. S. NATIONAL MUSEUM, xvii.—On the Bothriothoracine insects of the United States, L. O. Howard. Notes on the geographical distribution of scale insects, T. D. A. Cockerell.

25. ENTOMOLOGISCHE NACHRICHTEN. Berlin, xx, H. 9.—Studies on *Osmiæ*, III, H. Friese.

26. PSYCHE. Cambridge, June, 1895.—Notes on the Winter insect fauna of Vigo County, Indiana, I, W. S. Blatchley. Eggs of the long-nosed ox-louse, *Hæmatopinus vitula* L., F. L. Harvey. On the validity of the Tachinid genus *Celatoria*, D. W. Coquillett. The larva of *Butalis basilaris* Zell., the relations of its setæ, H. G. Dyar. Two new western Coccidæ, T. D. A. Cockerell.

27. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxix, pt. 5.—New ants from Oriental Imerina (Moramanga, etc.), A. Forel. Descriptions of the new species of phytophagous Coleoptera obtained by Mr. Andrews in India, M. Jacoby.

28 SCIENCE GOSSIP, June, 1895.—An aquatic Hymenopterous insect, F. Enock.

29. BULLETIN DE LA SOCIETE ZOOLOGIQUE DE FRANCE, xix.—Note on the Cicindelid Coleoptera of the genus *Phæoxantha* Chaudoir, E. Fleutiaux. Odonata of Cyprus, R. Martin.

30. MEMOIRES DE LA SOCIETE ZOOLOGIQUE DE FRANCE, vii, parts 2, 3. —Studies on the ants (seventh note). On anatomy of the petiole of *Myrmica rubra* L., C. Janet (part 4 of same). Observations and experiments on the means of protection of *Abraxas grossulariata* L., F. Plateau. Complete list of the Xylophilidæ described before 1894, M. Pic. Contributions to the Mediterranean myriapodological fauna (third note), H. W. Brölemann.

31. ZOOLOGISCHE JAHRBUCHER (Abtheilung f. Systematik, Geographie u. Biologie), viii, part 3.—Contributions to the knowledge of the North American ant fauna, C. Emery.

32. ENTOMOLOGISCHE ZEITUNG. HERAUSGEGEBEN VON DEM ENTOMOLOGISCHEN VEREIN ZU STETTIN. JAHRGANG 51 (1890).—Our present knowledge of the Ephemerinæ (cont.), H. Hagen. *Sphyrorrhina charon*, a new genus and species of Goliathidæ, O. Nickerl. New exotic Coleoptera, A. F. Nonfried. On the preparation of larvæ, H. Disque. Comparative studies on ant and termite guests, E. Wasmann. The entomological nomenclature, H. I. Kolbe. Contributions to the knowledge of the Butalidæ, Dr. Hofmann. On Libellulinæ of the collection of Dr. Heinrich Dohrn, F. Karsch.

33. STATE AGRICULTURAL COLLEGE (Agricultural Experiment Station), Bulletin No. 31.—A preliminary list of the Hemiptera of Colorado, C. P. Gillette and C. F. Baker.

34. BULLETIN OF THE UNITED STATES NATIONAL MUSEUM, No. 48.—A revision of the Deltoid moths, J. B. Smith. This paper is a continuation of the author's "Contribution toward a monograph of the Insects of the Lepidopterous family Noctuidæ of Boreal America," and will no doubt prove a valuable addition to the literature of Lepidoptera. It contains 126 pages and 12 plates. The work shows great care in regard to synonymy, descriptions and execution of plates.

35. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 1895, part 1.—Some new bees of the genus *Perdita*, T. D. A. Cockerell.

36. MITTHEILUNGEN DES NATURWISSENSCHAFTLICHEN VEREINS FUR STEIERMARK, JAHRGANG, 1894.—The Diptera of Steiermark, pt. iii (Diptera Nemocera), P. G. Stobl.

37. REVUE SUISSE DE ZOOLOGIE ET ANNALES DU MUSEE D'HISTOIRE NATURELLE DE GENEVE, iii, 1.—Revision of the tribe of the Perisphærini, with plate 1, H. de Saussure et L. Zehnter.

38. ARCHIV FUR NATURGESCHICHTE. Berlin, 61 Jhg., Bd. i, H. 1.—Contributions to the comparative morphology of the abdomen of the Coccinellidæ, and on the muscling of the abdomen of *Coccinella*, ... C. Verhoeff.

39. TERMESZETRAJZI FUZETEK, xviii, 1, 2.—Species of the genus *Prionosomus* Fab., G. Horvath. Description of new species of Ichneumonidæ of the Hungarian fauna, S. Brauns.

40. PROCEEDINGS OF THE LINNEAN SOCIETY OF NEW SOUTH WALES (2), ix, pts. 2-3.—Wood moths, with some account of the life-histories, . . . W. W. Froggatt. Part 3.—Studies on Australian entomology, No. 7, new genera and species of Carabidæ, . . . T. G. Sloane.

41. DELAWARE COLLEGE AGRICULTURAL EXPERIMENT STATION, Bulletin No. 25.—The San José scale insect in Delaware, M. H. Beckwith.

42. NEW YORK STATE MUSEUM, Bulletin II, No. 13.—The San José scale, *Aspidiotus perniciosus* and some other destructive scale insects of the State of New York, J. A. Lintner.

43. JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY, iii, No. 2.—Notes and descriptions of Tachinidæ, D. W. Coquillett. A variety of the larvæ of *Sphinx plebeius*, W. Beutenmüller. Notes on two *Callimorphas*, H. G. Dyar. On the food-habits of certain dung and carrion beetles, C. W. Clark. Notes on a collecting tour in Connecticut, R. L. Ditmars. Two California Phalangids, N. Banks. Notes on Drepanid larvæ, H. G. Dyar. On the larvæ of the Hepialidæ, A. S. Packard. Preliminary handbook of the Coleoptera of northeastern America, C. W. Leng and W. Beutenmüller. A list of the spiders of Long Island, . . . N. Banks.

44. PSYCHE, July, 1895.—Life-history of *Clisiocampa pluvialis* Dyar, H. G. Dyar. On the Tachinid genus *Acroglossa* Williston, D. W. Coquillett. Woolly leaf-gall made by a species of *Callirhytis* on scrub oak, C. H. Townsend. Local butterfly notes, S. W. Dayton. New North American Coccidæ, T. D. A. Cockerell. New North American bees, ibid.

45. THE ENTOMOLOGISTS' MONTHLY MAGAZINE, July, 1895.—List of the Coleoptera common to Britain and North America (concl.), G. C. Champion.

46. ANNALES SOCIETE ENTOMOLOGIQUE DE BELGIQUE. Tome xxxix, vi.—Brenthides, by Dr. A. Senna (Hovasius alluadi N. G. nov. sp.). List of the Coleoptera in the collection of H. E. Andrews, Esq., from India and Burmah, with descriptions of new species and notes, H. S. Gorham.

47. THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION, vi, No. 11.—*Eudryas stæ Johannis*, A. Radcliffe Grote.

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The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper is published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

The Entomological Section of the Chicago Academy of Sciences held its regular monthly meeting at the house of W. E. Longley, 115 South Ridgeland Avenue, Oak Park, Ill., Friday evening, June 21st. A good attendance present. Mr. A. J. Snyder, the recorder of the Section, with an assistant, left June 14th for a ten-weeks' collecting tour in the West, The members present report the collecting this season unusually good.

W. E. LONGLEY, *Chairman.*

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

NEW CALIFORNIAN COLEOPTERA.

By F. E. BLAISDELL, M. D.

Conientis sanfordii n. sp.—Length 12.5 mm.; width 6.0 mm.—Oblong, moderately elongate with sides feebly arcuate, rather strongly convex, very highly polished, smooth; vestiture minute and fulvous in color.

Head rather coarsely and densely punctured, sides as prominent as posterior canthus of eyes; antennæ slender. *Prothorax* one-half wider than long, apex nearly two-thirds as wide as base, angles rather broadly rounded; base transverse and very feebly bisinuate laterally; angles feebly rounded and not prominent; sides strongly arcuate anteriorly, feebly so posteriorly; disc very finely punctured, punctures becoming denser at sides, lateral edges strongly beaded. *Elytra* at least twice as long as prothorax; punctures fine, but larger than those of pronotum and rather sparsely distributed; sides feebly arcuate. *Abdomen* strongly convex, polished, feebly and sparsely punctate.

California (Calaveras County, elevation 2300 feet). A series of three specimens clearly demonstrates a well-marked species.

From *elongata* it differs in its more robust form, shorter and broader prothorax.

The type has been carefully compared with large series of each of the following species: *elliptica viatica*, *eschscholtzi*, (and *affinis*).

In Casey's synopsis of this genus ("Coleopterological Notices," ii, p. 372), the present species may precede *viatica*, with the following brief definition:

Form more robust, sides of head as prominent as posterior canthus of eye, very highly polished, prothorax transverse and very finely punctured.

Occurs in ledges and beneath the débris under trees. When living it is strongly primrose. I dedicate the species to Mr. O N. Sanford, of Coronado, San Diego County, in recognition of the fact that he has done much to make known the insect fauna of Southern California.

Eleodes armata impotens n. subsp.—Length 19.0 mm.; width 7.0 mm. Form rather elongate and strongly convex, black throughout and somewhat opaque. *Head* rather finely, sparsely, submuricately punctured; antennæ slender, subclavate, shorter than head and prothorax, joints fifth, sixth and seventh subequal in length and width, outer joints rather suddenly widened, transversely elliptical, and twice the width of sixth. *Prothorax* moderately convex, subquadrate, scarcely wider than long, apex truncate, equal in width to base,—the latter feebly arcuate; apical angles dentiform, small, acute and strongly divergent; basal angles almost rectangular, not prominent; sides moderately arcuate in anterior two-thirds, thence feebly convergent to base; disc convex, smooth, very finely and sparsely punctate. *Elytra* scarcely three times as long as prothorax, less than one-third wider than the latter, strongly convex; sides evenly arcuate, humeri not prominent; base equal to contiguous prothorax; apex narrowly rounded; disc rather suddenly declivous behind,

punctate; punctures moderately fine, arranged in rather closely placed, feebly impressed series, intervals with similar, sparsely, irregularly placed punctures, which are not asperate at sides; anterior tibial spurs similar, rather long and equal; middle and posterior spurs shorter. *Legs* slender all the femora armed, the anterior with an acute tooth, the middle with an obtuse tooth which is less prominent, the posterior with a smaller and very obtuse process.

Female is larger and more convex, head rather large, thorax strongly convex, but elytra less so; femoral teeth as in the male.

California (Merced County).

Described from two specimens. Subsequently a series of eight specimens were received in which the femoral spurs uniformly agreed with those of the type specimens, the elytral punctuation being much more decided, and the general form more elongate, approaching that of *gigantea*.

Eleodes confinis s. sp.—Length 22.0 mm.; width 9.0 mm. Rather robust, very convex and subcylindrical, feebly shining and smooth. *Head* large, as long as wide, finely and evenly punctured; antennæ robust, reaching to posterior third of the prothorax, third joint about two and one-half times as long as wide, not longer than the next two, joints four to eleven, inclusive, subequal in length; seventh as long as wide; eighth, ninth, tenth and eleventh wider than long. *Prothorax* scarcely a third wider than long, apex broadly and feebly emarginate, subequal to base, which is feebly arcuate; apical angles dentiform, not divergent, feebly acute; sides quite strongly arcuate in anterior three-fifths, widest just in front of middle, posteriorly straight, convergent *and not in the least constricted* in front of basal angles, the latter obtuse, not rounded nor prominent; disc convex, very finely, evenly punctate. *Elytra* about two and two-third times as long as prothorax, and at base equal to the contiguous base of the latter, widest at middle; sides evenly arcuate to apex, which is obtuse and emarginate from the depression of elytral suture in the declivous portion; humeri obtuse and slightly prominent; disc smooth, strongly convex, very finely and feebly punctured, punctures arranged in closely placed series, intervals with a series of very fine, sparsely placed punctures, with others that are irregularly scattered and which become denser along suture, and rather more confused at apex and outer intervals; scutellum rather large and glabrous. *Abdomen* smooth, shining, finely and sparsely punctate. *Legs* moderately slender, anterior femora armed with a small acute tooth; spurs similar and subequal.

California (Mokelumne Hill, Calaveras County).

The present form should be placed with those species having the thorax with sides gradually narrowing to base, and should precede *hispilabris* in our lists.

Helops stenotrichoides n. sp.—♀. Length 11.5 mm., width 4.0 mm. Elongate oval, piceous, head, antennæ and legs rufo-piceous. *Head* transverse, finely and densely punctured; epistoma depressed, and truncate at apex, angles narrowly rounded; eyes convex, round (viewed from above), prominent; antennæ slender, outer joints very slightly compressed, reaching to middle third of elytra, feebly incrassate, third joint slightly shorter than the next two, fifth just visibly shorter than the fourth, eleventh ellipsoidal and just perceptably longer than the eighth. *Prothorax* quadrate: apex strongly arcuate and equal to the base, apical angles feebly rounded; base truncate, angles subrectangular; sides feebly arcuate anteriorly, nearly straight and feebly convergent posteriorly; disc evenly, moderately, transversely convex, rather finely, very densely punctate throughout, at sides the interspaces raised into very fine, wavy longitudinal rugæ. *Elytra* twice as long as wide, and nearly two and one-half times longer than the prothorax; base slightly wider than the contiguous base of the latter; humeri slightly prominent and narrowly rounded; sides nearly parallel anteriorly, rather strongly arcuate in posterior third to apex; disc moderately convex, widest at junction of middle with posterior third, finely striate, intervals with a few scattered, very fine transverse rugæ, each interval with a single series of irregularly spaced, small tubercles, which become obsolete towards the suture. *Abdomen* very finely and moderately sparsely punctate, clothed with very short, sparse, flavate hairs, which are rather long, and flying on the last ventral segment; metasternum between coxa and groove equal to the first ventral segment in length. *Legs* moderately slender, tibiæ pubescent.

Male.—Length 8.0 mm.; width 2.5 mm. Slender, subparallel, antennæ reaching to middle of the elytra, third joint equal to the next two, others more elongate, eleventh about twice as long as wide. *Elytral* intervals convex and narrow.

California (Mokelumne Hill, Calaveras County.

Several specimens taken in November and December from beneath the bark on an old Buckeye (*Æsculus californica*) stump. In the present species the prothorax is widest at the junction of middle and anterior thirds, and should be placed with those apterous species which have the antennæ longer than the head and prothorax, prothorax quadrate, with apex rounded.

At one time the ravages of the *Dermestes vulpinus* were so great in the skin warehouses of London, that a reward of £20,000 was offered for an available remedy.—*Baird's Cyclop. Nat. Sci.*, London, 1858.

Ovalle states that, in the pampas of Chili, bread is made of Locusts and of Mosquitos.—*Cowan's Curious Facts.*

ODONATA—A NOTE AND A DESCRIPTION.

By Prof. D. S. KELLICOTT, Columbus, Ohio.

In his paper,* the Odonata of New York State, Mr. Calvert says that "*Diplax obtrusa* probably lives in New York." I am able to confirm the truth of this inference as I have taken it several years in succession in Hastings, Oswego County; in August and September I have found it quite as abundant as *D. rubicundula.*

In the "Catalogue of the Odonata of Ohio,"† I gave an account of the habits, localities in which it had been taken, and a description of the female of a species of *Enallagma* which I had mistaken for *Enallagma divagans.* All that is said in that article refers to the species described below and not to *divagans.* I have obtained examples of the latter and compared the two. They are clearly distinct and I hasten to correct the grave error.

Enallagma geminata n. sp.—Length of abdomen, ♂ 20 mm., ♀ 19 mm.; hind wing ♂ 15 mm., ♀ 15 mm. (♂) Head: labrum and brows blue, clypeus and vertex black, post-ocular spots cuneiform, not connected, blue; prothorax black edged with blue, scarcely bilobed. Thorax black above with a blue stripe each side (this is sometimes divided as in *N. posita*); sides blue with a black line on the suture. Wings hyaline, pterostigma black; legs black and pale, tarsi black. Abdomen brassy black, blue as follows: 1, an apical ring and a lateral spot connected with it; 2, a basal ring interrupted dorsally, this ring is sometimes very wide and the interruption also, there is a lateral stripe connected with the ring; 3-6, basal interrupted rings; 8-9, wholly, abdomen beneath pale blue with brown shades apically; the abdominal appendages are black, agreeing very closely in form with those of *divagans*; they are relatively stouter, and from above the outline is more oblong; there is a sharp tooth on the lower edge of the inner face, the upcurved apex of the lower branch (referring to the type *exsulans*) is a little stouter and more obtuse than in *divagans*, while the upper one is a little less prominent; the inferior appendages are little longer than the superior with the acute apex curved upward and inwards.

♀.—Very similar to the male. The blue of the front of the head of the male is pale blue or brownish; the post-ocular spots and humeral stripes a little paler; the abdomen is black above, the sides pale blue, sternal membrane black; there is an apical ring on 1; 3-7 have a basal pale blue ring with a wide interruption dorsally; on 8 there is a large blue spot on either side, these are separated dorsally by a black line of varying width; the appendages are black, the valves pale or faded brown.

* "Journal of the Entomological Society of New York," vol. iii, p. 48.

† "Journal of the Cincinnati Society of Natural History," January, 1895, page 205.

I have taken it as follows : Licking Reservoir, Ohio, May 25, July 11 and 25 ; Sandusky, Ohio, June 26 ; Delaware, Ohio, May 30 ; Springfield, Ohio, July 6 ; Sugar Grove, Ohio, September 4 ; Corunna, Mich., July 25. At Licking Reservoir it was not uncommon at the dates given for July.

The variable width of the basal ring on 2 is confusing ; in consequence the dorsum of 2 in some examples is completely black, in others the black is restricted to a well marked apical spot, hence different individuals fall into different groups of the genus. Again the appendages of the male, except the inner tooth, which was at first overlooked, are so nearly like those of *divagans* that a mere description scarcely separates them. On the other hand both sexes are smaller than *divagans*.

OBITUARY.

MOUNT CARROLL, ILL., July 30.—Dr. Henry Shimer died on Sunday, July 28th. He was formerly State Entomologist, and had the honor of naming all the grasses and cereals at the World's Columbian Exposition, and was also engaged in work for the Smithsonian Institution at Washington. He was worth $100,000.

We were surprised and pained to see the above notice in one of our Philadelphia newspapers. Only recently we had a very pleasant visit from Dr. Shimer, and he always came to the Academy on his periodical visits to this State.

ENTOMOLOGICAL NEWS for June, was mailed May 30, 1895.

Prof. C. V. RILEY, M.A., Ph.D.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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Prof. C. V. RILEY, M. A., Ph.D.

It is with profound regret that we publish these lines relating to the death of Prof. C. V. Riley, who was an Englishman by nativity, having been born in London in 1843. His boyhood was passed in the village of Walton, on the Thames. He subsequently attended schools in France and Germany. For six years he studied on the Continent of Europe, and this is the secret of his familiarity with the French and German languages, and of his power of speaking them with exceptional accuracy. Two passions characterized his boyhood—one for collecting insects, the other for drawing and painting.

The early loss of his father, and the care at school of a younger brother, developed in young Riley a self-reliance and sense of responsibility which gave a practical turn to his views, and convinced him that the classical education he was getting lacked many elements of utility. So, at the age of seventeen, he sailed for New York, where, after a seven weeks' voyage, he arrived with little means and "a stranger in a strange land." He went West and settled upon a farm in Illinois. Here he remained for four years, and acquired an experience of practical agriculture. About the time of his majority he commenced journalistic work in Chicago, where, in connection with his work on the paper, he gave special attention to botany and entomology. His writings,

especially on economic entomology, soon made him well and favorably known to the public.

In 1868 he accepted the office of State Entomologist of Missouri. For nine years he worked in this position. It was during this time the great grasshopper plague of Kansas and Missouri occurred, and his services in connection therewith as Chief of the Entomological Commission of the United States were of the highest value.

In the Spring of 1878 he was tendered the position of Entotomologist to the Department of Agriculture, which he accepted, but shortly afterwards relinquished, retaining, however, his position at the head of the Entomological Commission, and continuing his work in the service of the Government. In 1881 the Division of Entomology in the Department of Agriculture was formed, and Professor Riley was placed at its head—a position which he continued to occupy until last year, when, on account of impaired health, he tendered his resignation.

Professor Riley has given to the National Museum at Washington, his private collection of American insects, containing more than 20,000 species, and represented by 115,000 pinned specimens, and much additional material unpinned and in alcohol. Professor Riley was a member of many scientific and philosophical societies of this country and Europe, and has received many medals and diplomas of honor from foreign governments. In 1889 he received the insignia of Knight of the Legion of Honor. At this time the French Minister of Agriculture wrote him a personal letter acknowledging the distinguished and valuable services which he had rendered to French agriculture.

HOW HE WAS INJURED.

Prof. Riley left his residence at 2135 Wyoming Avenue, on Columbia Heights, a few minutes after nine o'clock, on September 14th, and, mounting his bicycle, started for the city by the way of the Columbia Road and the extension of Connecticut Avenue. There is a steep hill between California Avenue and Boundary Street, and those who saw Professor Riley coming down this grade noticed that he was riding more rapidly than was his custom. When he reached the flat pavement at Connecticut Avenue and S Street, whose intersection is but a few feet from Florida Avenue, the front wheel of the bicycle struck a piece of granite that was

lying on the concrete, having apparently dropped from one of the wagons hauling broken stone for the base of the asphalt pavement being laid in that vicinity.

When the wheel came in contact with the obstruction it turned directly at right angles and Professor Riley was thrown with great violence, head downward, on the pavement. His feet seemed to get tangled in the pedals and the machine fell on top of him. He was apparently lifeless, and a stream of blood gushing from his ear had already formed a pool on the pavement. The injured man was lifted up and laid on the parking, and in a few minutes several physicians were present. The observable injuries of Professor Riley consisted of a deep gash over the left eye, a cut across his nose and the laceration of every knuckle on either hand, showing that his grasp on the handle bar of his machine had not relaxed, so quickly had the catastrophe happened. Death took place shortly after midnight on September 15th.

The work done by Professor Riley is too well known to entomologists to require a detailed account, and we are sorry, indeed, that his life was cut short at a period when he would have had much more time to devote to research, having given up executive and routine work in the Department of Agriculture.

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Some Entomological Notes from Montgomery County, Virginia.

By ELLISON A. SMYTH, JR., Blacksburg, Va.

Inasmuch as *Argynnis bellona* has been given a hitherto Northern range, it will be of interest to note its capture in this southwestern part of Virginia; two specimens, both males, were captured here in the latter part of August, 1894; both were taken in a wet, boggy place in a little valley, and were the only ones seen, the only other Argynnidæ taken or seen being *Arg. cybele*, *diana* and *Euptoieta claudia*. Three specimens of *Phyciodes nycteis* were also taken here in July, and in June I saw one *Melitæa phæton* on the side of Bald Knob, about 4000 feet above sea-level, but having no net, failed to secure it.

This Spring (April 13, 1895) I saw my first *Thecla damon*, on *Juniperus virginica*, and it has been since, and is now (May 8), very abundant in both sexes, every red cedar having a few flitting about [illegible] inches. They seem also to fancy the bloom

of *Rhus aromatica*, and I catch them repeatedly at that, though I have not yet seen them near *Cercis*, also in full bloom, right at hand. The eggs are laid, as described by Mr. Scudder, on the very tips of the cedar twigs, and I have also noticed a great number of ichneumon fly (*Pimpla*, I think) diligently searching among the ends of twigs, so that I think it may be a parasite of *damon*, though as yet I have been unable to verify the suspicion.

In early April a negro brought in eleven imagos of *Dynastes tityus*, six males and five females, taken from the decayed base of a recently felled white oak stump; from his description there must have been many larvæ and pupæ there also, which he said his chickens had destroyed. As soon as possible Prof. Alwood and myself visited the place; the stump was much rotted on one side, and we removed about a bushel of the excrement of the larvæ; we were too late, however, finding only one male and one female imago, the remains of a pupa skin, and at last, by very diligent search and by following each decayed rootlet to its base, we secured two of the large, remarkable larvæ, which are still in captivity, in rotting wood supplied them in the breeding-case.

Papilio glaucus is the only female form of *turnus* that I have seen here, and they are smaller than those captured on the seaboard of South Carolina. *Eudamus cellus* is occasionally taken in the watered rocky ravines where the wild catnip covers the ground.

The males of *Argynnis diana* are flying in early June, and the females appear about the last of July, being in full force in August, at which times the males are much worn, and it is then difficult to secure good specimens of the males. I have invariably found the males more difficult to catch than the females; at the first alarm they make for the forests on the hillsides and are lost; in their early appearance in June they are mostly to be seen on the wing, crossing and following the mountain roads, and are then difficult to catch; later both sexes are attracted by thistle in bloom, and also by the purple *Eupatorium*, but their favorite plant is the iron weed, *Vernonia angustifolia*, and its allies; so much is this so that we used to call this "Diana Weed," and in driving through the mountains always stopped whenever we saw a patch of it. It is enough to make the heart jump to come across a fine head of *Vernonia* and see two or three of the blue females quietly feeding, their blue color contrasting well with the

rich purple of *Vernonia;* it is better to see only one *diana* on a cluster, however, for if there are more, the effort to secure all at a stroke generally results in the escape of all, and a *diana* once alarmed is not always easy to approach. I have collected *diana* along the Blue Ridge, but in my experience their stronghold is near Brevard, in Transylvania County, North Carolina, and the country around the Davidson River and head-waters of the French Broad. In the valleys near Buck Forest Hotel and Cedar Mountain and Cashar's Valley (near Brevard), wherever patches of *Vernonia* are seen, and even on the dahlias in front of the mountaineer's cottage, can be found, in August and September, *dianas* enough to satisfy the most ardent collector.

Colias eurytheme, so characteristic on the coast and midlands of South Carolina (in fact, there, being the only *Colias*, save *cæsonia*) is not seen here at all, being replaced by *philodice.*

And lastly, among the Sphingidæ, the great brown *rustica* is occasionally taken at the *Datura* blossoms, though not as plentifully as in Charleston County, South Carolina. I am now anxiously awaiting news from a pupa of *Citheronia sepulchralis* captured on *Pinus mitis* last September.

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RHOPALOCERA OF TENNESSEE.

By WILLIAM OSBURN.

During the Summer of 1894, while making a study of the insect fauna of Nashville and vicinity, considerable attention was given to the diurnals. As far as I am aware, no list of the butterflies of Tennessee has ever been published. The subjoined list, representing seventy species, is not exhaustive, as but a small section of the State has been explored, an area such as would be described by a radius extending about fifteen miles from Nashville. The season was unfavorable, owing to the excessively cold spell in May and the unusual drought through most of the Summer. Observations extending over several seasons and including the eastern and western portions of the State will probably increase the list to one hundred species or more. In ENTOMOLOGICAL NEWS for March, 1893, Dr. Henry Skinner reports *Neonympha canthus*, *chrysophanus*, *hypophlæus* and *Grapta faunus* as found in North Carolina. In the April issue for 1894,

Rev. John Davis reports *Grapta progne*, *Pamphila accius*, *Phyciodes phaon*, *Lycæna alce* and *Pyrgus syrichthus*, as taken in Arkansas, and in the "Canadian Entomologist" for October, 1894, Hattie H. Warner includes in her list of Kentucky butterflies *Melitæa phæton*, *Satyrus alope*, *Pamphila peckius* and *Nisoniades juvenalis*.

The above and other species of contiguous States will doubtless be added to our fauna upon more extended research.

The data appended to each species have been confirmed, in most cases, by personal observations. The months are given to indicate when specimens were actually observed. The number of specimens observed furnishes the data upon which the abundance or scarcity of each species is based. It is understood, however, that the rarity of a species is not always indicated by the number of imagoes actually seen. Last Fall I succeeded in securing a large number of caterpillars of *Pyrameis cardui*, but not a single imago was seen. Further, a species scarce in one season may be abundant in another. Last Fall *Agraulis vanillæ* was decidedly rare, while in the Autumn of 1893, it was unusually abundant.

For assistance in determining doubtful specimens I am under many obligations to Dr. Henry Skinner, of Philadelphia, to whom were submitted examples of every species except three. Appended is the list:

1. *Danais archippus* Fab.—Abundant; March to November. Three broods; hibernates in imago state. Food-plant, milkweed.

2. *Agraulis vanillæ* Linn.—Rare; August to November. Two broods; the imago hibernates, and possibly the chrysalis; one specimen emerged January 15th. Food-plant, passion vine.

3. *Euptoieta claudia* Cram.—Abundant; March to November. Three broods; the imago hibernates. Food-plant, passion vine.

4. *Argynnis diana* Cram.—Rare. Prof. G. H. French writes: "I have received it from Chattanooga, Tenn." Probably two broods; the pupa probably hibernates. Food-plant, violets.

5. *Argynnis cybele* Fabr.—Rare; June to October. Two broods; the pupa probably hibernates. Food-plant, violets.

6. *Argynnis aphrodite* Fabr.—Prof. G. H. French, in his "Butterflies of Eastern United States," reports it from Tennessee. Two broods; probably hibernates in the pupa state. Food-plant, violets.

7. *Phyciodes nycteis* Db.-Hew.—Rare; June to August. Probably two broods; probably hibernates in the larva state. Food-plants: aster, sunflower, etc.

8. *Phyciodes tharos* Dru.—Abundant; probably three broods; the larva hibernates. Food-plant, aster. Seasonal forms *marcia* and *morpheus* both abundant.

9. *Grapta interrogationis* Fabr.—Common; March to November; the imago hibernates. Food-plants: hackberry, elm and hop-vine. Seasonal forms *fabricii* and *umbrosa* were reared from the same brood of larvæ.

10. *G. comma* Harr.—Rare; June and August. Two broods; the imago hibernates. Food-plant, hackberry.

11. *Vanessa antiopa* Linn.—Rare; two specimens in June. Two broods; the imago hibernates. Food plants: willow, elm, poplar.

12. *Pyrameis atalanta* Linn.—Common; May to October. Three broods; the imago probably hibernates. Food-plants: nettle and hop.

13. *P. huntera* Fabr.—Common; June to November. Three broods; the imago hibernates. Food-plants: burdock, sunflower, etc.

14. *P. cardui* Linn.—Common; September to November. Probably three broods; the imago hibernates. Food-plant, thistle.

15. *Junonia cænia* Hüb.—Somewhat common; July to November. Probably three broods; the imago hibernates. Food-plants: snapdragon and plantain.

16. *Limenitis ursula* Fabr.—Rare; July and August. Probably two broods; probably hibernates in the pupa state. Food-plants: willow, cherry, etc.

17. *L disippus* Gdt.—Somewhat common; August and September. Two broods; hibernates in the larva state, and possibly the chrysalis. Food-plant, willow. One specimen of var. *floridensis* was taken August 22d.

18. *Apatura celtis* Bd.-Lec.—Common; July to September. Two broods, possibly three; the larva hibernates. Food-plant, hackberry.

19. *A. clyton* Bd.-Lec.—Rare; June to October. Two broods; the larva hibernates. Food-plant, hackberry. Seasonal forms *proserpina* and *ocellata* were both observed.

20. *Anæa andria* Scud.—Common; April to November. Two broods, possibly three; the imago hibernates. Food-plant, *Croton capitatum*.

21. *Debis portlandia* Fabr.—Rare; two specimens in July. Probably two broods; the larva probably hibernates. Food-plant, grass.

22. *Neonympha gemma* Hüb.—Common in dense woods July to September. Three broods; the larva probably hibernates. Food-plant, grass.

23. *N. eurytris* Fabr.—Common; May to July. One brood, possibly two; the larva hibernates. Food-plant, grass.

24. *N. sosybius* Fabr.—Rare; July to September. Two broods; the larva hibernates. Food-plant, grass.

25. *Libythea bachmani* Kirtl.—Abundant; June to October. Two broods, possibly three; the imago probably hibernates, early specimens being worn. Food-plant, hackberry.

(To be continued.)

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SPHERULARIA BOMBI IN AMERICA.

An animal in which Prolapsus vaginæ is normal.

By CH. WARDELL STILES, Ph. D.

Prof. John B. Smith recently sent me some parasites (*Spherularia bombi*) from the body-cavity of the Humble-Bee for determination and requested me to write a short account of them for publication in ENTOMOLOGICAL NEWS.* I acceed to the request all the more willingly as, so far as I have been able to find, this curious parasite has never been described in American literature, although several records of the presence of a parasite in the Humble Bee occur in American journals which undoubtedly refer to this particular species.

The parasite in question is one of those curious forms in which, what frequently occurs to a moderate degree as a pathological process in higher animals, here takes place to an enormous extent as the normal condition of affairs; it is further an extremely interesting form, as a particular set of organs normally undergoes an hypertrophy entirely out of proportion to its original size, or in fact to the size of the original organism. A third point in connection with the worm is that it represents one of those peculiar cases of parasitism in which only the female sex lives a parasitic life.

* I found specimens in material collected by my students in female *Bombus pennsylvanicus*, *B. fervidus* and *B. consimilis*.

The worm was discovered, in 1838, by Léon Dufour, who was inclined to look upon it as an insect-larva. Von Siebold, however, afterwards showed that true nematodes develop from the egg of this monstrosity, and its systematic position was thus made somewhat more clear. The worm was then observed by various workers, but no clear explanation of the paradoxical organism could be given. Lubbock afterwards noticed that an almost microscopic nematode was frequently found attached near one end of the parasitic structure, and Schneider suggested that the larger tube-like structure was an organ which had become more or less independent of the original body. Prof. Rudolf Leuckart* (1887), to whom science owes the solution of so many of the riddles which confront the helminthologist, finally made a very thorough study of the worm, together with another worm, showing the same tendency to a somewhat lesser degree, and succeeded in clearing up this gynecological mystery.

The following is an abridged account of the parasite, and those who desire to examine more closely into the details of the subject are referred to Leuckart's magnificent monograph.

The males and females of *Spherularia bombi* are almost microscopic; they live in moist earth and, although their intestinal system is not of such a structure as to allow of their taking food, they may live for months, probably using the reserve material stored up during their inter-uterine existence. Their reproductive organs come to functional development and the animals copulate: after copulation the males die, the females alone living to represent the species.

The females then watch their chance to obtain a "widow's home" for the Winter; they enter the female Humble-Bee which is about to hibernate, and in the body-cavity of this insect they continue their curious development. The vagina gradually evaginates through the vulva, taking with it the entire sexual apparatus, and the greater part of the intestine; this evaginated portion develops to an enormous extent, attaining in many cases 20 mm. in length by 1 mm. in breadth, but remains attached for a long time to the almost microscopic body of the original worm at the vulva, or possibly it would be better to say that the body of the female remains attached at the vulva to its evaginated

* 1887—Neue Beitrage zur Kenntniss des Banes u. d. Lebensgeschichte der Nematoden; Abh. d. math.-phys. Cl. Kgl. Sachs. Ges. d. Wiss. pp. 565-704, 3 Taf.

genitalia! Finally, the body of the worm falls, and the genitalia continue to live an independent existence, nourished by osmosis in the body-cavity of the bee. It is estimated that the genitalia have hypertrophied 60,000 times their natural size, and have become 15,000 to 20,000 times the size of the original female.

In the meantime numerous embryos have developed within the uterus; these embryos fall into the body-cavity of the bee and become free, probably boring through the intestinal wall of the host and being passed, or in some cases by the death and decay of the bee. Upon becoming free, they develop their sexual organs and copulate, the males die and the females await the opportunity of obtaining a Winter home in the next Winter's female humble-bees.

It is almost needless to add that the presence of these parasites, especially in large numbers, brings about an atrophy of some of the organs, more particularly of the internal genitalia of the host, and this causes the female bees to remain more or less sterile.

The parasite described (*Spherularia bombi*) does not represent the only species of nematode in which we find these gynecological conditions. Leuckart has described a parasite (*Atractonema gibbosum*) from the body-cavity of the larva and pupa of a small *Cecidomya* which has a similar life-history, but in which the *prolapsus vaginæ* occurs to a more moderate degree. I have also frequently noticed *prolapsus vaginæ* in the genus *Oxyuris* (pin-worms) more particularly in *O. ambigua* Rud., 1819, found in rabbits (*Lepus cuniculus*). This condition, which is not infrequently noticed in the worms found in the intestines, can be brought about artificially by suddenly immersing the parasite in cold water.

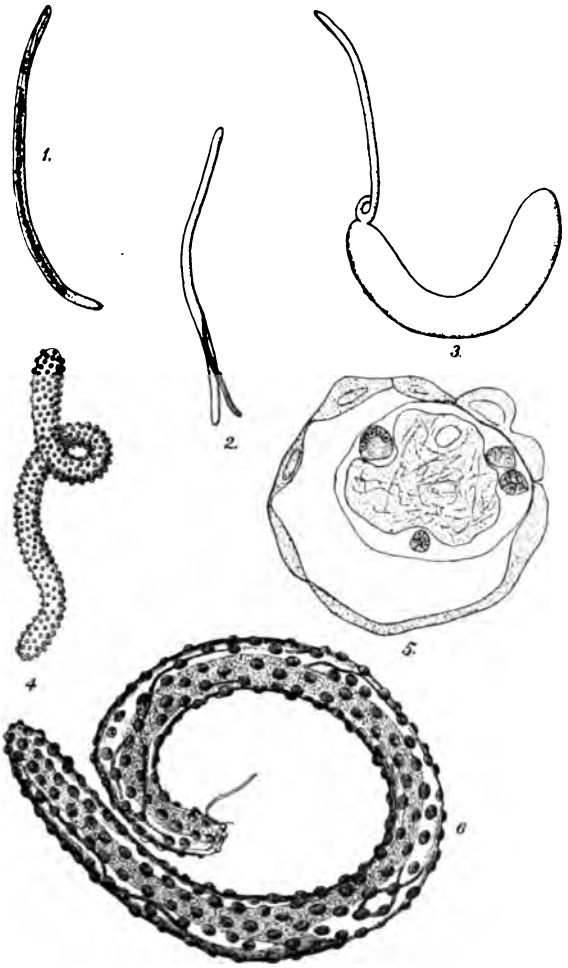
EXPLANATION OF PLATE XI.

Fig. 1.—Normal young worm.
" 2.—Female with beginning evagination of the vagina.
" 3.—The evaginated vagina has grown larger than the worm and contains the other genital organs and the intestine.
" 4.—*Spherularia bombi* as usually found. The body of the worm has fallen.
" 5.—Transverse section through fig. 4.

Figs. 1-5 are taken from one of my old Leipzig sketch-books, and figs. 2, and 5 at least, and possibly also fig. 3 were made from Leuckart's original preparations.

Fig. 6.—*S. bombi* with the body of the worm still attached. After Lubbock, from Cobbold.

All figures greatly enlarged.



SPHERULARIA BOMBI.

List of Butterflies taken in the vicinity of Ft. Klamath, Oreg.

By B. L. CUNNINGHAM.

Papilio zolicaon
" eurymedon
" rutulus
Parnassius clodius
Neophasia menapia
Pieris occidentalis
" beckerii
Anthocharis stella
" sara reakirtii
" ausoniades
Colias eurytheme
" sp. ?
Danais archippus
Argynnis leto
" monticola
" eurynome
" epithore
" arge
Melitæa colon
" rubicunda
" gabbii
Phyciodes pratensis
Grapta, comma var.
" satyrus
" zephyrus
Vanessa antiopa
" californica
" milbertii
Pyrameis atlanta
" huntera
" caryæ
Limenitis lorquini
Heterochroa californica
Cœnonympha inorata
Satyrus ariane
" œtus
" charon
Chionobas californica
Thecla californica
" spinetorum
" iroides
" behrii
" eryphon
" dumetorum
Chrysophanus editha
" mariposa
" helloides
" cupreus
" zerœ
Lycæna sæpiolus
" pheres
" antiacis
" sagittigera
" glaucon
" shasta
" melissa
" anna
Pamphila vestris
" sylvanoides
Pyrgus tesselata
" cœspitalis
Nisoniades persius
Eudamus æmilea

This list is not complete, but is as nearly so as I am now able to make it.

I think that *Papilio oregonia* is to be found within a few miles of here, at least within twenty, on "Modoc Point," a spur of the east Cascade Range of Mountains which run down on the east side of Upper Klamath Lake.

THE HABITS OF CALIFORNIAN BEES AND WASPS.

Anthidium emarginatum, its Life-history and Parasites.

By ANSTRUTHER DAVIDSON, M. D., Los Angeles, Cal.

It is doubtful if they ever dig the hole wherein they nest. I find them in so many different places that I incline to believe they occupy whatsoever hole they find convenient. I have found them most frequently in short tunnels in the bare adobe banks, or in the soft sandstone rocks that form the walls of excavations and cuttings. These tunnels were originally the nesting sites of a species of *Anthophora*. While this may be considered the normal nesting place of this species of *Anthidium*, they are disposed to occupy any medium-sized hole, either in the ground or in a hollow stem; one built in the key-hole of a door. The hole or tunnel chosen is lined with the wool gathered from the foliage of *Gnaphalium chilense*, and *G. microcephalum*, our western species of everlasting. In this the pollen mass and egg destined to form each cell are deposited, the interval between each mass being composed of the same woolly material firmly compacted. The cells in each hole seem to be regulated solely by its depth and vary accordingly from one to seven. Usually the holes are not more than a few inches deep, but no matter what the depth she almost invariably fills the cavity to the top with this flocculent vegetable down, firmly compacted together. The object of this is doubtless to prevent the rain soaking into the cavity and endangering the vitality of the larvæ, for which purpose it is most admirably adapted being impervious to, and non-absorbent of water.

The eggs are deposited in the usual manner and the larvæ about the end of August spin their cocoons. These when stripped of the woolly covering and the larval excrement adhering to it, present a smooth chestnut-colored surface. They are oblong in shape with blunt ends, and average 6 to 8 lines in length and 3 to 4 in width. On the one end is a small mammillary projection showing on the outside a hollow tip. The cocoon on section appears to be slightly thinner towards the mammillated end, and is smooth and glossy silvery internally except opposite the tubercule, where the individual threads are more distinct. The papilla on section shows the external part hollow and coriaceous in texture, the internal lining is here less

dense than that of the remainder of the cell and the interval between is an open meshwork of fibres. Whether or not this is to be considered as an air hole or breathing tube, it is doubtless analogous to the structures described by Prof. Riley as occurring in the *Sphecius speciosus* ("Insect Life" vol. iv, 252).

Its capability to supply air must, from the nature of the interior lining, be limited indeed, yet probably this is its purpose. The remainder of the cell with its surfaces polished externally and internally seems totally impervious to air. Why the air-holes in the cocoon of *Sphecius speciosus* should be made to project above the surface I do not understand, but the necessity of their so doing in this instance is apparent on superficial examination. As I have already observed, the cocoons are covered over with a layer of excrementitious matter, so that unless the air-hole projected above the surface it too would become cemented over in the process of spinning the cocoon. The air-hole is always on the end nearest the outlet, and the larva always lies with its head toward that end.

Of the forty specimens of cells in my collection that appear on superficial examination to be identical, and were presumably built by this *Anthidium*, five prove to be constructed by an *Anthidium* of a larger size and brighter color than the one under review. Among the remainder were seven cells of the typical shape, but of smaller size, and thicker walled, the increased thickness being due to another layer uniformly disposed internally and forming in reality a double walled cocoon the interior of which was less glossy than the type.* These larvæ on hatching proved to be of an entirely different species, and have been identified for me (doubtfully, I fear) as *Megachile brevis*, Say.

Nine of the cells were occupied by parasites Of these

Leucospis affinis occupied three.

Photopsis unicolor Cress. occupied three.

Sphærophthalma sp.? occupied one.

Monodontomerus montivagus Ashm. occupied one.

Physocephalus affinis Will. occupied one.

This last was found in the cell adjoining that which contained the *Sphærophthalma* both of which were discovered in a nest constructed in the empty retreat of a trap-door spider.

* This species build their nests in June and July, and after spinning their cocoons remain in the lar ughout the Winter, pupating shortly before making their exit in the first

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., OCTOBER, 1895.

A NEW DEPARTURE.

WITH this number of the NEWS we will inaugurate a new departure in relation to the Economic Department of the journal. This department, as in the past, will be under the charge of Prof. John B. Smith, Sc.D., of New Brunswick, N. J. The principal change will be in the fact that papers for the department are solicited, and should be sent direct to the editor, Prof. Smith. If necessary we will increase the amount of space devoted to economic entomology, and do all in our power to make it a success. We fully appreciate its importance as a study, and see clearly that it has a great future; we also wish to make the NEWS as valuable as possible to the general public, and hope many patrons will recommend and introduce it among their friends interested in agriculture and horticulture. We hope to see this department grow into one of great usefulness, as it appeals more directly to the interests of the people at large who are all more or less interested in entomology as far as it touches their own comfort or interests. Prof. Smith is an entomologist who has a wonderful knowledge of practical work in this line, and under his able management the department can't help but flourish. We hope to see an abundance of material for the new section of the journal, which should be practical and popular, and not too technical.

A NUMBER of the members of the Feldman Social, including Prof. John B. Smith, will be the guests of Mr. Theo. E. Schmitz, at Arlington Beach, Cape May County, N. J., on Saturday September 21st. To collecting will be added the many enjoyments of the sea-shore.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Brunswick, N. J.

The work of *Scolytus 4-spinosus* in hickory (from "Garden and Forest"). Some remarks on the species illustrated by the cut will appear in the next number; see illustration.

Meeting of the Association of Economic Entomologists.—The seventh annual meeting of this body was held at Springfield, Mass., August 27th and 28th, President, J. B. Smith in the chair, and proved to be a very enjoyable affair to those in attendance. In point of numbers the gathering left something to be desired, a large number of Western and Northern representatives being prevented from attending by the distance, while the East was, as usual, poorly represented. The program, however, was of a decidedly interesting nature, productive of much discussion, and although long sessions were held each day, it was impossible to read all the papers. Some of those presented by members not in attendance were, therefore, read by title only.

The President's address consisted largely of general considerations and suggestions, calling attention to a number of features that needed consideration by the economic entomologist. Special attention was called to the fact that in many cases insecticides did not act in the same manner in all parts of the country, or that insects in some regions proved much more resistant than in others, and it was suggested that adverse criticism be withheld until we had a thorough knowledge of all the facts of the case. The subject of keeping up with the economic publications of the day was another of the topics, and it was suggested that all the members of the Association send to every other member a copy of all official publications at least, and that they send to some central point, say ENTOMOLOGICAL NEWS, at intervals of from one to three months, a list of all newspaper and magazine publications which are not likely to come into the hands of the busy worker. In this way it will be easy to keep up with what has been done by others, without the necessity of looking over carefully all the agricultural papers and the entomological department of local journals. The question of legislation against insect pests was touched upon, and the desirability of some central authority competent to deal with imported insects when they are first introduced was strongly urged. The subject of introductions of foreign insects was briefly touched upon, and especial reference was made to the Gypsy Moth, the Pear Midge, and the Sinuate Pear Borer—all of them eastern pests. The desirability of cooperation among entomologists was further referred too, and attention was called to the report of the Committee which was made in 1894, and left to be acted upon by the meeting of 1895.

In the business session the report of this Committee on co-operation was brought up for consideration, but owing to the length of the program was laid over for the last session, and was finally left without action.

Mr. C. L. Marlatt read "Some Notes on Insecticides," among which tests of the combined kerosene and water mixture were most interesting and instructive. It was found that the machinery devised for this purpose still left much to be desired, and that it was not possible to rely with certainty upon a uniform proportion of the kerosene and water. The effectiveness of the mixture, however, was commended. On the same subject was a paper by Mr. H. E. Weed, entitled "Experiments with the Knapsack Kerosene Attachment." In this he detailed the results of a spray of the mixed kerosene and water as compared with the emulsion, and it is found that the emulsion is, on the whole, a little more active; but that the water mixture is just as effective when a somewhat larger percentage of kerosene is used, and is a little injurious to foliage. The paper does not deal with the mechanical difficulties, but rather with the effectiveness of the kerosene and water not first emulsified. Yet, upon the same subject was a paper by Mr. Clarence M. Weed, which dealt with the mechanical difficulties, and suggested as a solution a narrow kerosene receptacle of the same heighth as the main tank, and containing just exactly the necessary proportion of kerosene to the water. This kept water and kerosene on the same level constantly, and in his experience the proportion in the spray was then also constant.

A paper by Mr. Aldrich, entitled "Spraying without a Pump," was then read and illustrated by means of blackboard sketches. The device is adapted only where water pressure is available, and indicates a method of attaching a receptacle with poison in such a way that the stream of water will carry a definite proportion with it during the process of spraying. In the discussion which ensued upon this, a number of devices of the same general character were described, and there was a somewhat general discussion as to the possibility of getting a receptacle from which the distribution of poison would be uniform.

Continuing the same subject of insecticides, Mr. J. B. Smith read a paper on "The uses of Insect Lime," in which he described a series of experiments made with an imported preparation known as "Raupenleim," and an American substitute which he had secured, and which is called "Dendrolene." He finds that it is practical to use these materials in the orchard for certain purposes, and that protection against many different kinds of borers can be obtained by an intelligent use of one or the other of these materials. Both are said to be petroleum products in the nature of an exceedingly impure vaseline. In the course of the discussion Mr. Davis reported good success with this material against the Canker worm in Michigan, while Prof. Fernald mentioned a somewhat less favorable result against the same insect in Massachusetts, due in this case to the fact that the cold of early morning chilled the preparation, so as to make it possible to be traversed by the insects. He also described the uses

that had been made by the Gypsy Moth Committee of this substance, and while its effectiveness was admitted it was pointed out that where the insects were exceedingly numerous they would finally form a bridge of dead bodies over which others safely crossed. Mr. Forbush, in speaking of the toughness of these insects, stated that he had seen caterpillars work their way through a ring of the insect lime and continue their journey above it apparently none the worse.

Mr. E. B. Southwick spoke of "A City Entomologist and Insecticides," in which he called attention to the trials and tribulations of a man in public position where there is a constant demand by enthusiasts and inventors for the trial of "unfailing" remedies.

In the course of this discussion it was plainly shown that in the matter of using insecticides it was not always safe to rely upon results obtained by others, though often those results could not be questioned. That it was yet more unsafe to conclude from our experiments on one species what the action of the same material would be upon another species. In other words we are practically compelled to experiment with every species that becomes troublesome, and the results in one State are not necessarily the same as those obtainable in another State under apparently similar conditions.

The second day's session began with a paper by Mr. L. O. Howard on "Some Shade-tree Insects of Springfield and other New England towns." Of these insects the Elm Leaf Beetle received the greatest consideration, a careful statement of the spread of this insect in the Eastern States being given and also a record of what had been done in the direction of checking or exterminating the pest. The most practical methods of dealing with the insects were referred too, and recommendations for handling the insects in large cities or on large trees were made. The essay was of popular interest, and was published almost in full in the local papers. Another species that was referred to as having become especially abundant during the present season was *Pseudococcus aceris*, which was doing considerable injury to maples in some cities, including Springfield.

Mr. Marlatt followed with a paper on "The Elm Leaf Beetle in Washington," in which he described the measures taken during the present season on the grounds of the Department of Agriculture—measures which were perfectly successful in protecting the trees. A point upon which stress was laid was the necessity of a very early spraying in order to prevent injury by the beetles, and furthermore it was noted that in spite of the number of broods in Washington the essential effort must be made against the first, and if protection is secured against that the balance of the season is less likely to prove troublesome. To a certain extent the conclusions reached in the New Jersey Report for 1894 were confirmed, and it seems to be largely a matter of an abundance of fresh food as to whether the beetles will or will not lay eggs for subsequent larvæ.

Dr. Lintner followed with another paper upon "The Elm Leaf Beetle

in Albany." He has discovered them during the present year in very great numbers in the center of the city, and has ascertained that they have been in the more southern parts for at least three years. Dr. Lintner very strongly urges the destruction of the pupæ at and near the base of the tree, and claims that in Albany it is the second brood that does the greatest injury. A very interesting discussion on this subject followed, in which Messrs. Riley, Fernald, Southwick, Smith and others took part. The general conclusion was, that it was simply a matter of mechanical work, and that there was no other difficulty in the way of successfully dealing with these insects. Mr. Smith confimed Mr. Marlatt's suggestions that the early sprayings were the most important, and that if the leaves could be protected from injury to such an extent that they would not be shed and that the tree would not be induced to throw out a second foliage, they would become so hard and so little to the taste of the insects, that the beetles would go into hibernation rather than lay eggs for a second brood; and if they did oviposit and larvæ hatched, a large proportion of them would die, or would grow so slowly, that the injury would be imperceptible.

A great deal of public interest was manifested in this meeting, and the attendance outside of regular members was large. Prof. Fernald presented a statement concerning "The Gypsy Moth," which included a brief history of the introduction of the insect, its spread, the organization for its proposed destruction, and an account of the work accomplished. A very remarkable fact which developed in the course of the experiments was that the caterpillars of this insect were able to devour an enormous quantity of arsenic without apparent injury, so that spraying, except for the destruction of the very young larvæ, was practically out of the question. The result was that more attention had been paid to the mechanical destruction of the insects, and very largely to their destruction in the egg stage. The future of the way was discussed and the propriety of congressional aid was referred to. Messrs. Forbush and Kirkland, in charge of the practical work of the Committee, followed, with some statements as to the character of the work that had been done, and as to experiments made in the direction of securing insecticides which would act upon these caterpillars without injuring the foliage; thus far nothing that could be satisfactorily recommended had been found. The arsenate of lead, useful though it is against other insects, is practically useless against the Gypsy Moth caterpillar, except in excessively large quantities. Dr. Riley made a brief statement concerning the part taken by him in the early history of the work, the recommendations made when he was first consulted, and the criticisms which he found it desirable to make upon the way the work was carried on at times. He very strongly commended, however, the character of the work that was now being done, and suggested that it was in line, to a large degree, with the recommendations originally made by him

Mr. E. B. Southwick read a paper upon "Economic Entomological work in the Parks of New York City," in which he described the apparatus of his department and the manner in which the work was done, an

some of the measures which he had found most satisfactory in treating those insects that were most troublesome in the parks. He finds that there is very little difficulty in controlling the insects, provided a sufficient force and a sufficient quantity of apparatus is placed at the disposal of the entomologist.

Dr. Lintner read a paper upon "Lina scripta," and described the injury done by the beetles and its larvæ on basket willow in Onondaga County, N. Y. The most practical methods of preventing injury thus far have been mechanical, and consisted in a sort of modification of the hooper dozer, adopted for the particular purpose, but a considerable amount of injury seems to be done each year, for which no remedy is yet at hand.

Mr. G. C. Davis read a paper on the "Insects of the Season in Michigan," in which he called attention to a considerable number of species that had been unusually troublesome, and among others the climbing cut worms, which have been especially hard to deal with in certain orchards. The application of the poisoned bran mixture at the base of the trees had been on the whole the most successful, and he had found, by direct experiment, that the addition of sugar to the bran and Paris green did not increase its attractiveness. He also described the injuries done by species of *Monarthrum* on peach trees, and described the curious appearance of the roots of the infested trees. On this point there was some discussion as to whether the attacks by the beetles were really the primary causes of the injury, and it was questioned whether the attacks in the trunk would produce the abnormal appearance in the roots. Mr. Smith suggested very pointedly that the injury to the roots might easily have been primary and the attacks of the Scolytid the secondary consequence. A paper on "The study of Forest Tree Insects" was presented by Mr. Hopkins, and read in his absence. It is the same paper that was presented before the Association of Agricultural Colleges and Experiment Stations, to which reference has been made in a previous number of this journal, and was interesting from the estimate of the money value of the injury done each year by insects—a question upon which some difference of opinion was expressed.

A paper from Mr. F. H. Chittenden, on the "Herbivorous habits of certain Dermestidæ" contained an interesting record of observed food habits of many of our species, showing that the generally accepted statements concerning their food must be considerably qualified. In the discussion a number of confirmatory facts were brought out and a readiness to accept Mr. Chittenden's conclusions was manifested, largely based upon the personal experience of members. Incidentally, the methods to be adopted in the case of the imported carpet beetle, *Anthrenus scrophulariæ* were discussed, and Dr. Lintner protested vigorously against any use of the term "Buffalo moth" even in a popular reference to this insect.

Mr. Webster presented a paper on "Some Interesting Facts Regarding the Genus Diabrotica," in which he traced, rather carefully, the distribution of the various species in the United States, their relationship to each

other, their probable original home and the points at which the species seems to have diverged. A second paper presented by him was read on "The Importation and Repression of Destructive Insects," and in this he criticised rather severely the lax methods adopted in dealing with insects introduced into this country and the dangers resulting from them. He made a number of important practical suggestions as to methods of dealing with such pests, and there was some discussion of this paper which would have been much more full, but for the unfortunate flight of time, the remainder of the session being taken up by another paper by Mr. Webster on "Insects of the Year in Ohio."

The election of officers followed, and resulted as follows:

President, Prof. C. H. FERNALD, Amherst, Mass.
1st Vice-President, Prof. HERBERT OSBORN, Ames, Iowa.
2d " Prof. F. M. WEBSTER, Wooster, Ohio.
Secretary, Mr. C. L. MARLATT, Washington, D. C.

It was resolved that the next meeting be held, as usual, with that of the American Association for the Advancement of Science, which will be held at Buffalo, N. Y., beginning on August 24th. It was also resolved that the Secretary of Agriculture be requested to print the Proceedings of this meeting as a special Bulletin of the Entomological Division of the Department.

Those entomologists who desire to obtain this Bulletin should send their names and a request for the Bulletin, when issued, to Mr. L. O. Howard, Entomologist, U. S. Dep't of Agriculture, Washington, D. C.

The meeting of the Entomological Division of the Association of Agricultural Colleges and Experiment Stations at Denver, during July, 1895, was not very numerously attended, Prof. Perkins, of Vermont, Prof. Atkinson, of New York, and Prof. Smith, of New Jersey, being the only eastern members present. Messrs. Bruner, Cockerell, Gillette, Hillman and Toumey represented the far west, leaving the central States without delegates. The meetings were somewhat informal, yet of considerable interest, and a number of papers from members not in attendance were read. The decidedly interesting fact was developed during the discussions that it is unsafe for western entomologists to repeat the recommendations made by their eastern colleagues without having first tested them. Climate, or some other factor, seems to exercise an influence so potent in some cases as to make a remedy, which is quite effective on the Atlantic, almost useless on the Pacific. Thus, Mr. Slingerland, in a careful study of the Pear-blister mite, found kerosene in quite a diluted emulsion a satisfactory remedy applied at a proper time. Mr. Aldrich, in Idaho, found it entirely useless, applied as recommended, and indeed found it difficult to kill the insects at all with the emulsion. In the interchange of experiences it seemed to be quite certain that kerosene in the far West is not nearly as useful as in the East. Of course, this opens up again the question of the effectiveness of certain poisonous substances and makes it necessary to duplicate experiments for different sections in future.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

Mrs. A. T. SLOSSON will probably have lots to tell us about the season's work at the Northern Hills, Franconia, N. H.

Mrs. F. O. HERRING divided the Summer between Gloucester, Mass., and the woods of Maine. No doubt many fine things will grace her cabinet as a result.

FIVE species of *Grapta* are found at King and Bartlett Lake in Somerset County, Maine. They are *J-album*, *faunus*, *progne*, *gracilis* and *comma*.—H. S.

Mr. WM. J. FOX, of the Academy of Natural Sciences of Philadelphia, spent two weeks collecting at Burning Springs, Wirt County, West Virginia, during July.

THE Neumoegen collection of Lepidoptera is to be placed on exhibition in the Brooklyn Institute. The collection is for sale. We believe it is to be on view October 1st.

THE interesting trip to the West made by Mr. W. H. Edwards and Mr. David Bruce was productive of most interesting scientific results, and they are to be congratulated.

Mr. PHILIP LAURENT, of Philadelphia, spent two weeks in collecting at King and Barlett Lake, Somerset County, Maine. Mrs. William Wagner, an enthusiastic lady entomologist from New York, was also enjoying life at the same camp in the woods.

Mr. G. D. HAVILAND, who is engaged in working at Termites, is desirous of examining specimens of *Termopsis*, and will be very much obliged to any one who will send him specimens of that genus, especially of the winged forms. Spirit specimens preferred. Address: G. D. Haviland, University Museum of Zoology, Cambridge, England.

THE COCCID GENUS BERGROTHIA Kraatz.—I have just learned from Mr. Bergroth that the name of this genus is pre-occupied in Coleoptera

by Reitter. It has all along been questionable whether the genus was a valid one; and for the present I do not care to propose a substitute, but will refer the species hitherto placed under it to *Dactylopius*.—T. D. A. COCKERELL.

FOLLOWING A MISTAKE.—In Dr. Uhler's list of Heteroptera by some mistake, I suppose, the family Berytidæ is placed before the section Rhopalina, of the family Coreidæ. Various lists of Heteroptera lately published follow blindly this mistake. It reflects but little credit on American entomology that authors should betray ignorance both of the literature of the subject and of the insects themselves. For the use of the word "Rhopalina," a knowledge of the insects, or a glance at some of Dr. Uhler's later papers ought to arouse a suspicion that there was something wrong in placing *Harmostes* in the Berytidæ.

THE "FOURTH" AT JAMESBURG, N. J.—For the fourth time the entomologists of Philadelphia, Newark, Brooklyn and New York united in fraternal intercourse at Jamesburg, N. J., on Independence Day. On arriving in Jamesburg the party was driven to the grounds "a la buckboard" and soon a "still hunt" after specimens of the various orders was in operation. But alas! whether due to the fact that umbrellas were in a minority, or to the detonation of a huge bomb, set off by Schmitz and imported by him from China at a large expense, and which Dr. Skinner assured the crowd was a fake, and would make no more noise than the ordinary shooter sold at five cents per hundred, rain set in shortly after the arrival. Fortunately, for a large number of the party, coleopterists with their always-present umbrellas were out in force, and fortunately for the beetles these were soon used for other purposes than that for which they were chiefly brought. Coleopterists show much foresight in choosing extra large umbrellas.

Thanks to Mr. Conerty, the man who kindly looks after our wants on the occasion, and the rest of the time raises cranberries by the bogful, the party was housed in the large sorting room attached to his barn and but a short time was required to forget the rain and to dispel any vindictive wrath that may have been harbored against the deceptive weather prophet who, on the day preceding, had suavely prophesied that "the day we celebrate will be an ideal day."

Matters were enlivened by a banjo, skillfully played by Mr. Weidt, and then followed several hours of song and general merriment in which all participated uninterruptedly, save when a luckless moth, disturbed by the merrymakers, attempted to escape by flying against the windows, which of course sent several Lepidopterists chasing after it, or when a visit was made to the "Quelle" for refreshment.

Historian J. B. Smith read a review of the previous meetings, which was replete with witticisms and indicated his ability to deal with historical subjects as skillfully as with the characters of Noctuidæ and Lachnosterna. Later, a discussion on sugaring took the excursionist's attention, and was participated in by essrs. Ottolengui, J. Johnson and others.

Messrs. Herpers, Laurent and H. Wenzel, made addresses. Mr. Wenzel's talk was brief, but to the point.

It was unanimously decided, after discussion, to hold the next outing in the Orange Mountains, in the northern part of New Jersey, and, out of justice to the Philadelphia collectors, to hold it in the vicinity of that city in 1897.

The party included the following persons: Philadelphia—Hoyer, Boerner, Seiss, H. Griffith, S. Griffith, Liebeck, Trescher, Schmitz, C. Johnson, J. Johnson, W. Johnson, Castle, Rodd, Laurent, Fox, H. Wenzel, H. Wenzel, Jr., E. Wenzel, Nell, Skinner, Reinicke. Newark—Stortz, Bischoff, Herpers, Weidt, Brehm, Seib. Brooklyn—Smith, Roberts, Meeske, Sherman, Reinoldt. New York—Ottolengui. Reading—Mengel. Wilmington—Jones. F.

UNCLE JOTHAM'S BOARDER.

ANNIE TRUMBULL SLOSSON.

I've kep' summer boarders for years and allowed
I knowed all the sorts that there be;
But there come an old feller this season along,
That turned out a beater for me.
Whatever that feller was arter, I vow
I hain't got the slightest idee.

He had an old bait net of thin, rotten stuff
That a minner could bite his way through;
But he never went fishin', at least in the way
That fishermen gen'ally do;
But he carried that bait net wherever he went,
The handle was j'inted in two.

And the bottles and boxes that chap fetched along!
Why, a doctor would never want more;
If they held pills and physic he'd got full enough
To fit out a medicine store.
And he'd got heaps of pins, dreffle lengthy and slim,
Allers droppin' about on the floor.

Well, true as I live, that old feller jest spent
His hull days in loafin' about
And pickin' up hoppers and roaches and flies,
Not to use for his bait to ketch trout,
But to kill and stick pins in and squint at and all;
He was crazy 's a coot, th'ain't no doubt.

He'd see a poor miller a flyin' along—
The commonest, every-day kind—
And he'd waddle on arter it, fat as he was,
And foller up softly ahind,
Till he'd flop that air bait net right over its head,
And I'd laugh till nigh out of my mind.

Why, he'd lay on the ground for an hour at a stretch
And scratch in the dirt like a hen;
He'd scrape all the bark off the bushes and trees,
And turn the stones over, and then
He'd peek under logs, or he'd pry into holes;
I'm glad ther' ain't no more sech men!

My wife see a box in his bed-room, one day,
Jest swarmin' with live caterpillars,
He fed 'em on leaves off of all kind of trees,
The ellums and birches and willers;
And he'd got piles of boxes chock full to the top
With crickets and bees and moth millers.

I asked him, one time, what his business might be,
Of course I fust made some apology—
He tried to explain, but sech awful big words!
Sort o' forren, outlandish and collegey,
'S near 's I can tell, 'stead of enterin' a trade,
He was tryin' to jest enter *mology*.

And Hannah, my wife, says she's heerd o' sech things;
She guesses his brain warn't so meller;
There's a thing they call Nat'ral Histerry, she says,
And, whatever the folks there may tell her,
Till it's settled she's wrong she'll jest hold that air man
Was a Nat'ral Histerrical feller.

THE MARX COLLECTION OF ARACHNIDA.—The eminent arachnologist, Dr. George Marx, of Washington, D. C., died Jan. 3, 1895. His important collection of Arachnida has been placed by his widow in charge of the undersigned committee of the Entomological Society of Washington, to be disposed of by sale. The collection is one of the most important in existence. It contains more than one thousand species of Aranæina alone. Of this one thousand species, about five hundred are described species from North America. These are described among 175 genera. The families Theridiidæ, Epeiridæ and Theraphosidæ are particularly well represented, and have been identified largely by some well-known authority. The Theridiidæ were in the hands of the late Count Keyserling, and about thirty of his species have their types in this collection. The Theraphosidæ have been recently in the hands of Simon, of Paris, while Dr. McCook has examined the Epeiridæ. In addition to these 500 described American species there are about 200 species of European spiders properly identified and labeled, and nearly 300 American species which bear Dr. Marx's manuscript names. There is further a great mass of material which has never been worked up.

The species are, many of them, represented by many specimens. The collection is contained in vials in Muller's fluid, and the vials are arranged

in the standard trays of Dr. Marx's own invention as figured and described in Riley's "Directions for Collecting and Preserving Insects" (Smithsonian Institution, Part F, Bulletin 39, U. S. National Museum). The collection is of special interest, aside from the number of species, on account of the excellent representation of the boreal fauna. There are many specimens from Alaska on the west and Labrador on the east. In addition, all parts of America, north of Mexico, are represented. Besides the Aranæina there are many specimens of *Scorpionida*, *Solpugida* and *Pseudoscorpionida* and *Pedipalpi*.

After due consideration of the fact that the funds of most public institutions are deficient, and that it is never possible to secure for a collection of this kind an amount which is at all commensurate with the labor expended upon it, we have decided to offer, for the present, this collection for sale for the sum of fifteen hundred dollars ($1500).

Correspondence relative to the collection or its possible purchase may be addressed to any member of the committee:

C. V. RILEY (deceased), U. S. National Museum.
L. O. HOWARD, U. S. Department of Agriculture.
E. A. SCHWARZ, U. S. Department of Agriculture.
THEODORE GILL, Smithsonian Institution.

P. S.—With the collection will be delivered to the purchaser Dr. Marx's large and valuable library on Arachnida, comprising all the important works on the group, well bound, together with several hundred pamphlets.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be limited to twenty-five for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. NATURGESCHICHTE DER INSEKTEN DEUTSCHLANDS, Erichson. Berlin. Erste Abtheilung, Band v.—Coleoptera, G. Seidlitz.

2. ENTOMOLOGISKE MEDDELELSER, KJOBENHAVN, v, 1, 2.—*Rheumatobates bergrothi* n. sp., F. Meinert.

3. ZEITSCHRIFT FUR PFLANZENKRANKHEITEN. Stuttgart, v, 3.—On insect enemies of *Pinus silvestris* and *P. austriaca*, K. Sajo.

4. NOVITATES ZOOLOGICÆ. London, vol. ii, 2.—Descriptions of new species of butterflies, G. Smith. New species and genera of Geometridæ in the Tring Museum, W. Warren. New species of Rhopalocera from the Solomon Islands, W. Rothschild.

5. OPUSCULA ENTOMOLOGICA, C. G. Thomson, Lund, fasc. xix.—Bidrag till kännedom om Tryphonider. Fasc. xx.—Bidrag till Braconidernas kännedom.

6. BIOLOGIA CENTRALI-AMERICANA, Zoology, pt. 122.—Arachnida-Araneidea, O. P. Cambridge. Coleoptera, parts by G. C. Champion and D. Sharp. Lepidoptera-Rhopalocera, F. D. Godman and O. Salvin. Lepidoptera-Heterocera, H. Druce. Rhynchota-Homoptera, W. W. Fowler.——pt. 123.—Coleoptera (iii, pt. 1, pp. 361–376, pls. 15, 16), G. C. Champion. Coleoptera (iv, pt. 6, pp. 33–48, pl. 2), D. Sharp. Hymenoptera (ii, pp. 361–368), P. Cameron. Lepidoptera Heterocera (ii, pp. 209–232, pl. 60), H. Druce. Rhyncota Homoptera (ii, pp. 81–88, pl. 6), W. W. Fowler.

7. PROCEEDINGS OF THE IOWA ACADEMY OF SCIENCES, 1894, vol. ii.—Insects, H. F. Wickham. Plant Lice infesting grass-roots, H. Osborn and F. A. Sirrine. Some bred parasitic Hymenoptera in the Iowa Agricultural College collection, A. M. Beach. Psyllidæ found at Ames, C. W. Mally.

8. VERHANDLUNGEN DER K. K. ZOOL.-BOT. GESELLSCHAFT IN WIEN, xlv, Heft 6.—Remarks on varieties of some butterflies natives of Bukowina, C. v. Hormuzaki.

9. JOURNAL TRINIDAD FIELD NATURALITS' CLUB, vol. ii, No. 7.—Notes on Trinidad butterflies, Lechmere Guppy, Jr.

10. PSYCHE, August, 1895.—Notes on the Winter insect fauna of Vigo County, Indiana, W. S. Blatchley. Habits and parasites of *Stigmus inordinatus* Fox, A. Davidson. Prickly leaf-gall of *Rhodites tumidus* on *Rosa fendleri*, C. H. T. Townsend. The Bombylid genus *Acreotrichus* in America, D. W. Coquillett. New North American Odonata, ii, A. P. Morse. Notes on moths, Caroline G. Soule. Proc. Cambridge Ent. Club—*Colias hecla*, *Lycæna xerces*.——September, 1895.—Notes on the Winter insect fauna of Vigo County, Indiana, iii, W. S. Blatchley. Some habits of *Formica obscuripes* Forel, with notes on some insects found associated with it, G. B. King. New North American bees, T. D. A. Cockerell. A Mutillid which resembles thistle-down, ibid. New species of Coccidæ, ibid.

11. ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION, vol. vi, No. 12.—The Hadenoid genera with hairy eyes, A. R. Grote.

12. PROCEEDINGS CALIFORNIA ACADEMY OF SCIENCES, ser. ii, vol. v.—Third Report on some Mexican Hymenoptera, principally from Lower California,.W. J. Fox.

13. TRANSACTIONS AMERICAN ENTOMOLOGICAL SOCIETY, vol. xxii, No. 2.—Studies in Coccinellidæ, George H. Horn, M.D. Notes on bees, with descriptions of new species, Charles Robertson. The Crabroninæ of Boreal America, W. J. Fox.

14. THE ENTOMOLOGIST, vol. xxviii, No. 387.—Notes on the synonymy of Noctuid moths, A. G. Butler.

15. THE CANADIAN ENTOMOLOGIST, vol. xxvii, No. 8.—Occupants of the galls of *Eurosta solidaginis* Fitch, W. H. Harrington. New North American Mycetophilidæ, D. W. Coquillett. On the subglobular species of *Lecanium*, T. D. A. Cockerell. On the cabbage-shaped gall of *Cecidomyia, Salicis brassicoides* and its occupants, C. H. T. Townsend. Descriptions of the larvæ of certain Tenthredinidæ, H. G. Dyar. The Coleoptera of Canada, H. F. Wickham. List of Coleoptera collected at Massett, Queen Charlotte Islands, B. C. Preliminary studies in Siphonoptera, Carl F. Baker. The generic types included in Apatila, A. R. Grote. Notes on butterflies, F. H. Sprague. Melsheimer's sack-bearer, J. A. Moffat.——xxvii, No. 9.—Notes on collecting butterflies in western Colorado, with a particular account of certain Papilios, W. H. Edwards. Notes of some southern Lepidoptera, H. G. Dyar. The Coleoptera of Canada, xiii, H. F. Wickham. Miscellaneous notes on Coccidæ, T. D. A. Cockerell. The Boreal American species of Pamphila, H. Skinner. Notes upon the North American Saturnina, with list of the species.

16. AMERICAN NATURALIST, vol. xxix, No. 344.—Contributions to Coccidology, i, T. D. A. Cockerell. A new Tettix, J. L. Hancock. On the early stages of some Carabidæ and Chrysomelidæ, H. F. Wickham. *Cecidomyia atriplesis*, T. D. A. Cockerell. Mexican jumping beans, F. L. Harvey.

17. THE ENTOMOLOGIST. London, August, 1895.—Variety, form, race and aberration, W. Mansbridge. A revised classification of the genus *Aleuchus* (Weber), J. W. Shipp. Notes on the synonymy of Noctuid moths (cont.), A. G. Butler.——September, 1895.—Varietal terminology, W. F. deV. Kane. The senses of insects, J. Arkle. On the origin of the European Rhopalocera, and the effects produced by the glacial period upon their present distribution and diversity, W. H. Bath.

18. TRANSACTIONS OF THE CONNECTICUT ACADEMY OF ARTS AND SCIENCES, vol. ix, pt. 2.—Canadian spiders, J. H. Emerton.

19. ANNALS AND MAGAZINE OF NATURAL HISTORY, No. 92.—Notes on some genera and species of Coccidæ, W. M. Maskell. Description of two new spiders obtained by Messrs. J. J. Quelch and F. McConnell on the summit of Mount Roraima, in Demerara, with a note upon the systematic position of the genus *Desus*, R. I. Pocock. Further notes on *Cutiterebra:* on the identity of certain species described by the late Bracy Clarke, E. E. Austen. Descriptions of new Coleoptera in the

British Museum, C. C. Waterhouse. Description of new genera and species of Trap-door spiders belonging to the group Trionychi, R. I. Pocock.

20. MEMOIRES DE L'ACADEMIE IMPERIALE DES SCIENCES DE ST. PETERSBURG, viie série, T. xlii, 11.—Industry of the Araneina, W. Wagner.

21. TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, xxii, [extract].—A review of the Stratiomyia and Odontomyia of N. America, C. W. Johnson.

22. JOURNAL OF THE LINNEAN SOCIETY, Zoology, No. 158.—On the morphology of the *Pedipalpi*, M. Laurie.

23. BULLETIN DE LA SOCIETE PHILOMATHIQUE DE PARIS, T. vii, No. 1.—Salivary glands of the Apinæ (*Apis mellifica* ☿ and ♂), L. Bordas.

24. LE NATURALISTE CANADIEN, xxii, No. 7.—The last descriptions of the Abbé Provancher (cont.).

25. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 1895, pp. 303-340 [extract].—Diptera of Florida, C. W. Johnson, with additional descriptions of new genera and species, D. W. Coquillett.

26. THE ELEMENTS OF INSECT ANATOMY, H. Comstock and V. L. Kellogg—Comstock Publishing Co., Ithaca, N. Y., 1895.

27. INSECT LIFE, vii, 5.—Experiments with Winter washes against the San José scale, season of 1894-95, C. L. Marlatt. The *Hippelates* plague in Florida, E. A. Schwarz. The beet-leaf *Pegomyia*, L. O. Howard. Two Dipterous leaf-miners on garden vegetables, D. W. Coquillett. Some Coleopterous enemies of the grape-vine, F. H. Chittenden. The currant stem-girdler, C. L. Marlatt. Observations on certain Thripidæ, Th. Pergande. An imported library pest, E. A. Schwarz. Two Dipterous insects injurious to cultivated flowers, D. W. Coquillett. An injurious parasite, L. O. Howard. The horse-radish flea-beetle, F. H. Chittenden. A new wheat pest, D. W. Coquillett. Notes on Paris-green, C. L. Marlatt. Some changes in nomenclature, F. H. C. A new furniture pest, E. A. S. The home of the chinch bug, E. A. S. How Hemiptera feed, C. L. Marlatt.

28. ANNALES DES SCIENCES NATURELLES, ZOOLOGIE, T. xx, Nos. 1, 2, 3.—Male genital apparatus of the Hymenoptera, L. Bordas.

29. AMERICAN NATURALIST. Philadelphia, September, 1895.—A new classification of the Lepidoptera (cont.), A. S. Packard. Chordeumidæ or Craspedosomatidæ?, O. F. Cook. On the generic names *Strigamia*, *Linotænia* and *Scolioplanes*, O. F. Cook. *Picobia villosa* (Hancock), J. L. Hancock.

30. NATURE. London, No. 1347.—On the origin of European and North American ants, C. Emery.

31. ZOOLOGISCHE JAHRBUCHER (Abtheilung für Systematik, Geographie und Biologie), Jena, viii, Bd. H. 4.—Contribution to the knowledge of the ground spiders (Araneæ Citrigrade Thor.) of Russia, P. Schmidt, ibid. (Abtheilung für Anatomie und Ontogenie der Thiere). Contribution to the knowledge of the finer contexture and the phylogeny of the covering of the wings of the Lepidoptera, A. Spuler.

32. TRANSACTIONS OF THE ROYAL SOCIETY OF SOUTH AUSTRALIA, xix, 1.—New, or little-known Orthoptera from Lake Callabora, J. G. O. Tepper. Descriptions of new genera and species of Australian Coleoptera (xvii), T. Blackburn.

33. ARIZONA AGRICULTURAL EXPERIMENT STATION. Tucson, Bulletin No. 14.—Notes on scale insects in Arizona, J. W. Toumey. New scale insects from Arizona, T. D. A. Cockerell.

34. PROCEEDINGS AND TRANSACTIONS OF THE ROYAL SOCIETY OF CANADA, xii.—The fossil cockroaches of North America, S. H. Scudder.

35. JOURNAL OF THE TRINIDAD FIELD NATURALISTS' CLUB, ii, No. 8. —A new scale insect from Grenada, T. D. A. Cockerell. A new mealy bug on sugar-cane, ibid. The effect produced by ticks upon their hosts, C. A. Barber.——ii, No. 9.—New Trinidad spiders of the family Attidæ, G. W. and E. G. Peckham. Description of a new *Lecanium* from Trinidad, T. D. A. Cockerell. Description of a new species of *Telenomus*, bred by Mr. E. W. Urich, from a Coccid, W. H. Ashmead. Notes on scale insects, i, F. W. Urich.

36. TRANSACTIONS AND PROCEEDINGS OF THE NEW ZEALAND INSTITUTE, xxvii.—Synoptical list of the Coccidæ reported from Australia and the Pacific islands up to December, 1894, W. H. Maskell.

37. LEPIDOPTERA INDICA, F. Moore, London, pts. 21, 22.

38. NOVITATES ZOOLOGICÆ. London, vol. ii, No. 3.—A revision of the Papilios of the Eastern Hemisphere exclusive of Africa, W. Rothschild.

39. TECHNICAL SERIES of the Division of Entomology, U. S. Department of Entomology, No. 1.—Revision of the Aphelinæ of N. America, L. O. Howard.

40. ANNALEN DES K. K. NATURHISTORISCHEN HOFMUSEUMS. Wien, x, 1.—Additions to the monograph of the natural genus *Sphex* Linné, F. F. Kohl.

41. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxix, pt. 7.—Notes and descriptions of new ants, C. Emery.

42. ENTOMOLOGISCHE NACHRICHTEN, xxi, 17, 18.—Some new west African Heteroptera of the two groups Pentatomidæ and Coreidæ, F. Karsch.

[Through inadvertence the articles in Proc. Ent. Soc. Washington, iii, 4, "List of the Entomological Writings of Dr. Geo. Marx" and "Notes on Nomaretus," were credited to C. V. Riley in the last issue of the NEWS. The author is E. A. Schwarz.]

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper is published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

JUNE 11, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 South Thirteenth Street. Members present: Messrs. Bland, H. Wenzel, Dr. Castle, Hoyer, E. Wenzel, Haimbach, Trescher, Fox, Boerner, Schmitz and Laurent. Honorary members: Drs. Geo. H. Horn, Henry Skinner and J. B. Smith. Visitor: Mr. C. F. Seiss. Prof. Smith remarked that the larvæ he had exhibited about a year ago, which was doing so much damage among the young oak trees in Ocean County, N. J., was, without doubt, *Goes tesselata*, as he had taken the perfect imago from its burrow, less than a week ago. The larvæ make a burrow about six inches in length in the centre of young oak sprouts, ranging in age from ten to fifteen years and from one and a half to two inches in diameter. Mr. H. W. Wenzel replied that he had found *Goes tesselata* on just such trees, the year before in Atlantic County, N. J., on July 3rd and 10th. Mr. Wenzel also exhibited specimens of *Cychrus viduus* taken in the upper part of New Jersey. Mr. Laurent reported taking *Corymbites hamatus* May 17th, at Manayunk, Philadelphia, and *Pomphopœa ænea* May 19th, at Mount Airy, Philadelphia. Mr. Boerner exhibited the following specimens of Coleoptera: *Helluomorpha nigripennis*, taken at Atco N. J., on July 2nd; *Chlænius niger*, from the lower part of Philadelphia, at electric lights, on May 31st, and *Centrodera picta*, May 19th, in Bucks County, Pa.

No further business being presented, the members adjourned to the annex, where Prof. Smith had prepared for them an excellent collation, to which ample justice was done, followed by toasts and good wishes.

THEO. H. SCHMITZ, *Secretary*.

SEPTEMBER 10, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 South Thirteenth Street. Members present: Drs. Castle and Griffith, Messrs. Boerner, H. W. Wenzel, Laurent, Fox, Trescher, Johnson, E. Wenzel, Hoyer and Schmitz. Honorary members: Prof. J. B. Smith and Dr. Henry Skinner. Visitor: Mr. James Stewart, Philadelphia. Meeting called to order at 8.45 P.M., Vice-President Castle presiding. An interesting paper was read

by Mr. Laurent, recounting the recent collecting trip made by Dr. Skinner and himself through the upper part of Maine. He exhibited their collection, comprising Coleoptera, Lepidoptera, Diptera and Hymenoptera. Dr. Griffiith also read an interesting paper describing a trip made by Mr. Johnson and himself through North Carolina in last June; although devoting their time principally to the collection of fossils, they still managed to gather quite a variety of Coleoptera, Diptera ai 1 Lepidoptera, which were exhibited. Prof. Smith showed a photo-engraving of the work done by *Scolytus 4-spinosus*, the engraving was full size and was about the most perfect ever seen; he further stated that he had bred *Oeme rigida* from red cedar; also a species of *Scolytus* which he failed to identify. Each member was presented with a copy of Prof. Smith's annual report. Mr. H. W. Wenzel mentioned that *Lucanus elaphus* and *Scarites substriatus* had been found at Anglesea, N. J., during the Summer. Mr. Fox proposed Mr. C. Few Seiss for membership in the Social. Vice-President Castle presented a vote of thanks to Prof. Smith on behalf of the Social for the bounteous collation he had furnished at the close of the June meeting.

No further business being presented, the meeting adjourned to the annex.

THEO. H. SCHMITZ, *Secretary*.

OBITUARY.

Dr. ADOLF GERSTAECKER, Professor of Zoology in the University of Greifswald, died on July 20th, last.

ENTOMOLOGICAL NEWS for September, was mailed August 28, 1895.

Rev. J. G MORRIS, D. D.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. VI. NOVEMBER, 1895. No. 9.

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Rev. J. G. MORRIS, D. D.

Dr. Morris, the venerable Lutheran clergyman and well-known entomologist, died at his home at Lutherville (near Baltimore, Md.), on October the tenth, aged ninety-two years.

John Goodlove Morris was a son of Dr. John Morris, a surgeon in the Revolutionary War, whose commission was signed by Washington, and who died in his fifty-third year in 1805. Dr. Morris was born in York, Pa., Nov. 14, 1803. He was prepared for college at York County Academy, and at the age of seventeen years was admitted to the sophomore class at Nassau Hall, Princeton. Later he was transferred to Dickinson College, where he entered the senior class, and was graduated in 1822, taking the prize awarded the best declaimer. In October, 1826, having become a Lutheran minister, he was licensed to preach in Winchester, Va., and was soon called to the organization which afterward formed the First Lutheran Church, Baltimore. Here he remained thirty-three years.

Dr. Morris had been a lecturer before the Smithsonian Institution, was a member of the Royal Ante-Columbian Society of Northern Antiquaries, Copenhagen, of Die Naturhistorische Gesellschaft zu Nuremberg, Bavaria; of the Royal Historical Society, London; for twenty years an active member of the American Association for the Advancement of Science, and chairman

of the entomological sub-section of the same. He was elected a member of the American Entomological Society in 1859, a correspondent of The Academy of Natural Sciences, Philadelphia, in 1844, and was a member of the American Philosophical Society, and read an important paper at the celebration of the one hundred and fiftieth anniversary of that institution and was also a member of very many church organizations. Dr. Morris was a prolific writer on religious subjects as well as those of a scientific character. His principal contributions to the literature of entomology were very valuable; they were a "Catalogue of the Described Lepidoptera of North America," prepared for the Smithsonian Institution, Washington, 1860, and "Synopsis of the Described Lepidoptera of North America." Part I: Diurnal and Crepuscular Lepidoptera. Washington, 1862. The latter work contained descriptions of the then known Diurnæ, Sphingidæ and Bombycidæ. He was a professor of Natural History in the Maryland University, and possessed a fine collection of Lepidoptera. Dr. Morris was a delightful old gentleman, and his interest in entomology never abated in the least. We had a very pleasant visit from him when he came here to attend the celebration at the rooms of the American Philosophical Society.

———o———

Notes on the Cocoons of Certain Species of Saturniidæ.

By PHILIP LAURENT.

In the September number of the "Canadian Entomologist," vol. xxvii, pp. 263–271, will be found a very interesting article by A. Radcliffe Grote, A. M. The article, among other things, treats of the manner in which certain of our North American Saturniidæ construct their cocoons. Two of our species, both of which are quite common in Pennsylvania and New Jersey, are here recorded as spinning their cocoons some distance above the ground, the one with a pedicel of silk to a small limb or branch, while the other as spinning its cocoon in the leaves, and falling to the ground when the leaves fall.

Now, the fact is, as regards these two species (*Callosamia angulifera* and *Actias luna*), at least as far as their habits in Pennsylvania and New Jersey are concerned, and I doubt not but what it is the same wherever the species are found, that both *angulifera* and *luna*, as a rule, with few exceptions, descend the

COCOONS.—Laurent.

tree to the ground to construct their cocoons. The only food-plant of *angulifera* that I am acquainted with is the tulip poplar, and under this tree I have found hundreds of *angulifera* cocoons, the position of the cocoon in every case showing conclusively that the larvæ had descended the tree and spun their cocoons where I found them. In the majority of cases more or less grass was fastened to the cocoon, and then again the cocoon would be found fastened against an old log or stone. In no case was there a pedicel of silk attached to the cocoon, in fact the cocoon of *angulifera* does not in any way resemble that of its near relative —*promethea*—but approaches more to that of *Actias luna*.

From time to time I have seen it stated that the cocoon of *angulifera* was suspended in the same manner as *promethea*. Some years ago, before I was as well acquainted with the life-histories of our large Saturniidæ as I am to-day, I made a test-case: I gathered all the cocoons found suspended on the tulip poplar tree, several hundred in number, and when the imago emerged all proved to be *promethea*. *Actias luna* has the same habits as *angulifera*, and the only cocoon I ever found suspended above the ground, and attached to a leaf, is now in my collection, kept as a curiosity, and bears the following label: "This cocoon found attached to an oak leaf about four feet above the ground, collected at Germantown, Pa., Feb., 1891." I have tried time and again to find the cocoon of *Actias luna* suspended up among the leaves, but the foregoing is the only instance that has come under my observation. One of the best places to find *luna* cocoons, as every Philadelphia collector knows, is down around the base of the tree, particularly so if there is any grass or rubbish around the tree. I have found as many as five or six cocoons around the base of one tree when the conditions were as above stated.

This habit of spinning the cocoon at the base of the tree is more strongly developed in *luna* than in *angulifera*, the latter generally being found some distance from the tree, anywhere from five to twenty feet or more.

The specimens of cocoons figured are from the collection of Philip Laurent and Dr. Henry Skinner.

EXPLANATION OF PLATE XIII.

Figs. 1, 2 and 3, *Actias luna*.
" 4, 5 and 6, *Callosamia angulifera*.
" 7, 8, 9 and 10, *Callosamia promethea*.

THE SEASON ON MT. WASHINGTON.

By ANNIE TRUMBULL SLOSSON.

I have made three trips to Mt. Washington this Summer. My first was in July. On the afternoon of the 4th I went from Franconia with a companion to Fabyan's, where we met our good friend, the sphagnostic, and with him a learned judge and botanist from Massachusetts. We took the 4.40 train up the mountain. This was the first visit for many years of the legal plant collector, and his excitemeut and enthusiasm were unbounded. He flew from side to side of the car, looking eagerly out and uttering strange exclamations, such as "Geum!" "Ledum!" "Potentilla tridentata!" and "Vaccinium vitis-idæa!" In the brief stops at tanks or wood-stations he sprang from the train to the intense amazement and amusement of the unscientific passengers; coming back at the last instant, breathless but happy, with hands and pockets full of weedy-looking treasure.

It was a warm and pleasant day, but grew cold as we neared the summit. As the train stopped in front of the hotel I went at once to investigate the sun-warmed walls of the house. Alas! what a cruel sight met my gaze. Insect life! no, it was insect death. The house had been painted a few days before, during a spell of very warm, still weather, and on that surface of dazzling white, tempting and treacherous, thousands on thousands of insects had met their fate. The walls were peppered, or—to use the expression of a frivolous and punning young friend—*stuccoed* with Diptera, Hymenoptera, Coleoptera and other orders. The greater part of these victims were utter wrecks and unrecognizable, and I was glad it was so; I did not want to know what I had lost. I rescued some beetles which were so strangely maculated with the white paint as to look like new and wonderful species. The painters and carpenters who had been working on the house in June told me that the weather had been very warm in that month and the insects numerous and annoying, swarming and buzzing about their heads and lighting on their faces and hands. There was little collecting that first evening. It was cold and we were glad to sit around the big stove in the hall and talk of what we should do next day. I searched the house, examined windows and walls, and took a few insects of no great interest.

The next day opened well, with sunshine and warm, soft air,

and insects were fairly abundant. But the afternoon and evening were dark and wet, and the next day it rained ceaselessly. But in the bright hours of our first collecting day, botanists and entomologists had taken specimens enough to keep each one busy through most of the cloudy weather. We worked in our rooms, leaving doors open and exchanging ideas, comparing notes and boasting mutually of our respective captures. Many times during that day the botanists came to my table where I was pinning, stretching or mounting my insects, bringing small contributions found among their alpine plants. I seem still to see the judge as he ran in upon one occasion, his face beaming, his thumb and forefinger pressed tightly together and held out towards me. "Where shall I put him?" he cried, "beautiful specimen, smooth and shining." I quickly produced a cyanide bottle, and over its open mouth he unclosed his fingers; alas! there was nothing there; the very smoothness and shine of which its captor spoke so exultantly had helped it to freedom, and it had slipped away forever. But this loss was quite forgotten when, a few minutes later, the same botanist brought a fine specimen of *Notiophilus sibiricus* which had run across his drying papers out of some mosses. The sphagnostic contributed several good things, among them that tiny and rare little Coccinellid, *Hyperaspis dugubris*, and two or three small Staphylinidæ. In the material taken the day before I found some very good things. There were several specimens of a pretty little weevil, *Anthonomus xanthocnemis* Dietz, *Mordella serval*, *Scymnus puncticollis* and *Corphyra cyanipennis*, all new to my Mt. Washington list. There were also some interesting Ichneumonidæ, and a few good Diptera. On the afternoon of the 6th two more botanists joined our ranks, both old acquaintances. How the old house rang that evening with the sound of strange, polysyllabic words, excited talk filled with mysterious phrases, cabalistic and incomprehensible to all but the favored few.

The next day was alternately fair and foggy; an hour of sunshine, then thick clouds, fog, and an occasional drizzle of rain. But we found many specimens both of plants and insects. In the intervals of sunshine flies, bees and small beetles gathered on the *arenaria*, *potentilla* and earliest golden-rod, and the air seemed alive with tiny Diptera and Hymenoptera. The smaller parasitica were very abundant, Chalcids, Braconidæ and Proctotru-

pidæ, among which Mr. Ashmead has found many interesting species. A tiny Chalcid, with striped wings, was abundant everywhere on flowers and leaves, windows and walls. One rainy day I counted forty of them on the upper sash of my bedroom window. It was one of the Encyrtinæ, *Isodromus montanus*, Ashmead MSS. The genus, Mr. Ashmead tells me, is parasitic on *Chrysopa* larvæ, generally issuing from their cocoons. And this reminds me that the green lace-winged fly of the summit which I had seen year after year and occasionally collected, was this Spring determined by Mr. Nathan Banks as *Meleoma signoretti* Fitch. I had never examined the species closely, taking it for granted that it was *Chrysopa oculata*, or some other common species. But it has distinct structural differences when compared with *Chrysopa*, having the antennæ more widely separated, and between them a sort of horn or tubercle. Mr. Banks called my attention to this in the one specimen I sent him last May, and this season I took several more of the same insect. I think there has been no record of its capture since its first description by Fitch. Neuroptera are few on the mountain; I took two or three species of *Hemerobius*, the little *Leuctra tenuis*, which rolls its wings up tightly when at rest like a *Crambus*, and *Platyphylax designata*. Of Odonata I saw only *Diplax rubicundula* this season.

Monday, the 8th, was one of the best days of the Summer—warm, bright and still. Insect life swarmed everywhere, and my bottles, boxes, stretching-boards and hands were more than full. As usual, every one contributed to my store, and I am glad to acknowledge here my obligations, not only to my fellow-naturalists, but to all the kindly people connected with the hotel. These took a warm interest in my collection and brought me many good things. The engineer of the hotel, Mr. William Colby, is a very observant and successful collector, and to him I owe many of my rarest insects. It was he who brought me my first specimen of *Ibalia maculipennis*, that large and odd Cynipid, and he found for me also *Adelocera brevicornis* and *Harpalus varicornis*, both new to my list.

During the rest of my stay on the mountain the weather was variable, sometimes fair, oftener foggy and wet. One evening another entomologist arrived, a Coleopterist, from Boston. With him was a young physician, not entomological himself, but an

excellent collector for others, as I am glad to testify. And now there was a great upheaval of the old mountain and alpine beetles were in serious danger of extinction. The Coleopterist and his obliging friend left, literally, no stone unturned. The summit looked as if shaken by an earthquake, and the ground was full of holes and pits of irregular shapes, from which heavy stones had been dragged by the brawny arms of these athletic and eager collectors. I have nothing but praise for this pair. If, where Coleoptera were concerned, they seemed grasping and niggardly, I must own that with insects of other orders they were most generous and free-handed, and they shared with me—nay, gave me all of the flies, bees, bugs and spiders found incidentally while searching for their precious beetles. One day, while sitting at my window busy over my treasures, I heard a call, and looking out saw the young doctor holding a large stone in his uplifted right hand as if in the act of hurling at my window glass. Looking more closely I detected something peculiar on the stone's surface, and ran out with a cyanide bottle. There, resting torpidly on the stone, was a perfect, fresh, lovely specimen of *Arctia quenselii*, the first I had ever seen alive. The same obliging youth added several specimens of the rare *Meleoma*, of which I have spoken, to my collection; and the Coleopterist brought me some of my choicest Tenthredinidæ and Diptera.

Under stones the same Carabidæ, Byrrhidæ and Elateridæ, so numerous in former seasons, were abundant now. Of Staphylinidæ, the little *Philonthus palliatus*, was most plentiful, its brilliant orange elytra shining brightly in the darkness as we turned over the stones. *Cicindela vulgaris* flew over the carriage-road, and was found, on cold days, torpid under sticks and stones. I took but one *C. longilabris* this year, and one *C. purpurea*, the latter new to my mountain list. In Diptera I captured several new species and many rare things. One of the most interesting, so says Mr. Coquillett, was a little black Leptid, the *Spania edeta* of Walker. In this order I added some ninety additional species to my list. In Hymenoptera, one of the most common species was *Cryptus extrematis* a pretty red and black insect with apex of abdomen white. This I had hitherto taken only in southern Florida. Several of the Scolytidæ were abundant, especially *Polygraphus rufipennis*, which gathered on the windows and walls and filled the air by hundreds. I took in this group, also,

Tomicus pini and *Xyloterus bivittatus*. In Hemiptera I found several rare and interesting species, among them a tiny *Salda* at the edges of pools, on the summit, which is perhaps new.

In Lepidoptera I found less than usual, the weather not being favorable. *Plusia vaccinii* and two species of *Anarta* were, as usual, flying over the rocks and about blossoms. The little *Sciaphila mœschleriana* was also abundant around golden-rod near the "cow pasture" and in the alpine garden. *Grapta faunus*, *G. gracilis* and *Limenitis arthemis* were flying along the carriage-road up to the very summit. *Argynnis montinus* was not seen during my first visit, but in a later trip to the mountain in August I took several. It was in this later visit that I captured, on golden-rod in the alpine garden, a very remarkable and handsome *Hepialus*. It resembles, in marking and coloration, the European *H. ganna* or some of its varieties, but is, I think, much larger than any of these. I am still absent from my own collection and have no access to others, and have consequently been unable to make the necessary examination and comparison. None of this group have been recorded from the White Mountains.

Two years ago I found a singular Bombycid larva on the summit and referred to it in one of my papers. This season I found two or three more of the same kind and sent one to Mr. Dyar. He thinks it the larva of *Dasychira rossii*, and will doubtless report the results of his examination.

One of the most noticeable things in insect life on Mt. Washington this season was the abundance and destructiveness of one of the oil-beetles, *Epicauta cinerea*. Last Summer I found one specimen on the summit; this year they were there in countless numbers devouring plants of all species.

On the whole I am satisfied with the results of my season's collecting on the mountain. I spent twenty-three days in all on the summit, and but a very small proportion of these were really favorable as to weather. Yet I have added over three hundred species to my former lists, and among these are at least fifteen or twenty new to science. I shall soon print their names in another additional list.

Out of eighteen papers presented at the section of Zoology of the American Association, at Springfield, eight were on entomological subjects.

RHOPALOCERA OF TENNESSEE.—II.

By WILLIAM OSBURN.

26. *Thecla halesus* Cram.—Rare; August and September. One brood; probably hibernates in the pupa state. Food-plant, oak.

27. *T. m-album* Bd.-Lec.—Rare; June to September. Two broods; probably the pupa hibernates. Food-plant, oak.

28. *T. humuli* Harr.—Rare; June to September. Two broods, possibly three; probably the pupa hibernates. Food-plant, hop vine.

29. *T. smilacis* Bd.-Lec.—Rare; June and August. Two broods; probably the pupa hibernates. Food plant, smilax.

30. *T. pœas* Hüb.—Common in dense woods; May to September. Two broods. Food-plant unknown.

31. *Feniseca tarquinius* Fabr —Rare; June and August. Two broods; probably hibernates in the pupa state. Carnivorous, feeding on *Aphides* found on alder, wild currant, etc.

32. *Lycæna pseudargiolus* Bd.-Lec.—Rare; May to August. Two broods; the chrysalis probably hibernates. Food-plants: dogwood, rattleweed, etc.

33. *L. comyntas* Gdt.—Abundant; April to September. Three broods; the chrysalis hibernates. Food-plant, red clover.

34. *Pieris protodice* Bd.-Lec.—Abundant; March to November. Several broods, probably four; the pupa hibernates. Food-plants: plantain, etc. Not destructive to cabbage in this section; the light form is sometimes the female; the Winter form, *vernalis*, emerges in March.

35. *P. rapæ* Linn.—Abundant; March to November. Four broods, possibly more; the pupa hibernates. Food-plant, cabbage.

36. *Nathalis iole* Bdv.—Rare; July and August. One brood, possibly two. Food-plant unknown.

37. *Catopsilia eubule* Linn.—Rare; July to September. One brood; the pupa probably hibernates. Food-plant, senna.

38. *Meganostoma cæsonia* Stoll.—Rare; April to September. Three broods; the pupa hibernates. Food-plant, clover.

39. *Colias eurytheme* Bdv.—Somewhat common; June to September. Two broods, possibly three; the pupa probably hibernates. Food-plant, clover.

40. *C. philodice* Gdt.—Abundant; May to October. Three or more broods; the pupa hibernates. Food-plant, clover. Examples of var. *albinic* were taken in July and August.

41. *Terias nicippe* Cram.—Abundant; June to October. Three broods; probably hibernates in the pupa state. Food-plant, senna.

42. *T. lisa* Bd.-Lec.—Somewhat common; July to October. Two broods; probably hibernates in the pupa state. Food-plant, clover. Var. *alba* occasionally observed.

43. *Papilio ajax* Linn.—Somewhat common; April to October. Two broods; the pupa hibernates. Food-plant, pawpaw. Var. *marcellus* taken in the Summer months.

44. *P. turnus* Linn.—Somewhat common; April to September. Two broods; the pupa hibernates. Food-plants: apple, cherry, etc. Var. ♀ *glaucus* frequently seen in August and September.

45. *P. cresphontes* Cram.—Rare; June to September. Two broods; the pupa hibernates. Food-plant, prickly ash.

46. *P. asterias* Fabr.—Rare; July and August. Two broods; the pupa hibernates. Food-plant, parsnip.

47. *P. troilus* Linn.—Somewhat common; July to September. Two broods; the pupa hibernates. Food-plant, sassafras.

48. *P. philenor* Linn.—Abundant; April to October. Probably three broods; probably hibernates in the pupa state. Food-plant, probably Virginia snakeroot.

49. *Ancyloxypha numitor* Fabr.—Common; May to September. Two broods; the larva probably hibernates. Food-plant, grass.

50. *Pamphila zabulon* Bd.-Lec.—Common; May to August. Two broods. Food plant, grass.

51. *P. huron* Edw.—Abundant; April to September. Three broods. Food-plant unknown.

52. *P. phylæus* Dru —Somewhat common; June to September. Two broods. Food plant, grass.

53. *P. egerement* Scud.—Rare; June to August. Probably two broods. Food plant unknown.

54. *P. cernes* Edw.—Somewhat common; May to August. Three broods. Food-plant unknown.

55. *P. manataaqua* Scud.—Rare; one specimen, August. One brood. Food-plant, grass.

56. *P. verna* Edw.—Rare; August. One brood. Food-plant unknown.

57. *P. metacomet* Harr.—Rare; June to September. Two broods. Food-plant, grass.

58. *P. bimacula* G. and R.—Rare. One brood. Food-plant unknown.

59. *P. yehl* Skinner (see ENT. NEWS, vol. iv, p. 212).—June and September. Two broods. Food-plant unknown.

60. *Amblyscirtes textor* Hüb.—Rare; June to September. Two broods. Food-plant unknown. Found in dense woods and along the dry beds of creeks.

61. *Pyrgus tessellata* Scud.—Abundant; June to October. Two broods. Food-plant unknown.

62. *Nisioniades juvenalis* Fabr.—Rare; April to September. Two broods; the pupa hibernates. Food-plants: species of *Apios* and *Lathyrus*.

63. *N. petronius* Lint —Somewhat common; April to September. Two broods. Food-plant unknown.

64. *Pholisora catullus* Fabr.—Abundant; April to September. Three broods. Food-plants: *Monarda punctata*, *Chenopodium album*, etc.

65. *P. hayhurstii* Edw.—Rare; May to August. Two broods. Food-plant unknown.

66. *Eudamus pylades* Scud.—Somewhat common; June to August. Two broods. Food-plant, clover.

67. *E. bathyllus* S. and A.—Common; June to August. Probably two broods. Food-plant unknown.

68. *Eudamus lycidas* S. and A.—Somewhat common; May to August. Two broods. Food-plant unknown.

69. *E. cellus* Bd. and Lec.—Rare; one specimen, August. Food-plant unknown.

70. *E. tityrus* Fabr.—Common; April to August. Three broods; hibernates in the chrysalis state. Food-plant, locust.

71. *Thecla calanus* Hüb.—Several specimens in June.

72. *Antho-caris genutia* Fab.—One specimen, April 27th.

73. *Pamphila ocola* Edw.—One specimen in August.

Since writing the above I have had another season's opportunity for observation. The following notes and additions may be of interest:

One specimen of *A. diana* was taken at Nashville, June 24. *V. antiopa* was seen in September. *P. cardui* was abundant from April to November, four broods appearing. *L. ursula* appeared from April to August, three broods. Three broods of *A. celtis* were observed, first imagoes appearing May 28, July 14 and August 25; also three broods of *Anæa andria*, imagoes from the first brood of larvæ emerging June 11. *N. gemma* was first observed on June 10. Late specimens of *M. cæsonia* were mostly var. *rosea*. A few specimens of *T. nicippe* var. *flava* were taken in August. *P. philenor* was bred in abundance from *Aristolochia tomentosa*. As pupæ and freshly emerged imagoes were seen in a region where this plant and allied species were not found, efforts were made to discover the food-plant for that locality. A female was observed depositing its eggs on *Pseudo-polygonella dumetorum*, Climbing False Buckwheat, and, though no larvæ were found, the above plant may, without doubt, be added to the food-list of this species.

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A New Collecting Ground for Cicindela limbata Say.

By W. KNAUS, McPherson, Kans.

Cicindela limbata Say is one of the handsomest, and, until within recent years, one of the rarest of this showy family of beetles. It was described by Thomas Say, in 1823, and is not the true species, being but a variety of *hyperborea* Lec. This beetle was lost for a number of years, but was retaken some fifteen years ago by E. P. Austin in Nebraska.

In his monograph of the Cicindelidæ in the Bulletin of the Brooklyn Entomological Society, Mr. F. G. Schaupp figures *limbata* from nature, and partially describes it as follows:

Head and thorax green, with cupreous tinge; elytra white, suture oblique, line and dot green, blue or cupreous; exterior and basal edge greenish blue, beneath blue. Head hairy rugose. Thorax hairy rugose, little convex; elytra punctured, smoother than in *hyperborea*, with a long, sutural, triangular merula; a small dot before the middle, and an oblique irregular line behind the middle; these markings are brilliantly shining either green or blue, or cupreous. Length 12 mm.

It occurs, or has been taken, only in Nebraska, although it in all probability occurs in northeastern Colorado, eastern Wyoming and possibly southwestern Dakota.

In the Spring of 1892, Lawrence Bruner, of the University of Nebraska, made a trip to the northwestern part of the State and took a few specimens in Box, Butte County. A few have also been taken near Alliance, Neb., on the line of the B. and M. Railroad. In the Fall of 1892 I learned, incidentally, that Mr. J. W. Vandeventer, a graduate of the State Agricultural College, Manhattan, Kans., had collected this species in southwest Nebraska. In answer to a letter of inquiry he wrote as follows:

"In May, 1888, I took a Sunday stroll from Imperial, Neb., to the Frenchman River, about six miles south of town. The Spring had been very early, and the day was quite warm. About a mile from the river, on a very sandy hillside, covered with a thin growth of Yucca, bunch grass and a few weeds, I noticed my first specimen of *C. limbata*. It was very active and seemed to have a decided preference for the cleanest, sandiest ground, avoiding that covered with vegetation. Associated with it was a species about half its size, of a deep blue color, entirely without markings. I saw perhaps half a dozen members of each species on the hillside.

"At the foot of the hill there was a dry water course having a channel, perhaps six feet wide, composed entirely of clean sand without vegetation. Here I found both species in considerable numbers, though the *limbata* were much the more numerous. I followed the water course to the river and found them very plentiful all along it. The holes of *C. limbata* were also plentiful, and I noticed many of them fly out of and also into them."

Wishing to collect this species personally, I made the trip the latter part of May, 1893, reaching Imperial, the county seat of Chase County, by way of the B. and M. Railroad, from Superior, and a branch road from Culbertson. Imperial is twenty-five miles east of the Colorado line and some six miles north of the Frenchman River, a pretty little stream of clear running water. The town is on the open level; as you go south you strike the sand hills, and for three miles before reaching the stream the country is very broken and hilly. I reached Imperial the morning of May 30th, and immediately started overland for the river. The day was warm and the walking over sand hills not at all pleasant. Bare sand was plentiful before reaching the stream, but I saw and took no Cicindelidæ, except an occasional *scutellaris*, *formosa* or *repanda*. I found no *limbata*, however, until I

found a deep "blow-out" close up to and on the north bank of the stream. Here, running over the sides and bottom of the "blow-out" I found them in considerable numbers. They were very active little fellows, but I succeeded in taking twenty-five or thirty in two hours' work with the net.

The surface I collected over was not over one hundred feet square, and they were taken only on sand without vegetation, or sparsely covered with grass.

I visited the same locality May 31st and June 1st, of this year, and found the beetles at the same "blow-out." The weather was cooler and took only a dozen specimens from 3 to 4 p. m. The next morning I took the first specimens shortly after 9 a. m., and up to 11.30 had taken over thirty specimens. I was told by a resident that he had seen this insect in large numbers at a large "blow-out" eight or ten miles farther up the valley of the Frenchman. He called them "calico" bugs. The species taken in this locality differ somewhat from those further northwest. E. A. Schwartz, of the Division of Entomology, Washington, D. C., says: "Your *Cicindela limbata* are smaller than those collected by Bruner, and with the green markings wider. I do not doubt that there is somewhere in Nebraska or further north where specimens will be found intermediate between *limbata* and *borealis*."

My specimens had, with two or three exceptions, green or blue markings. The exceptions were coppery bronze. While making these two trips I collected at Superior, Culbertson and McCook, and found some very good things. The list includes:

Cicindela scutellaris, at Culbertson and Imperial. *C. lecontei*, at Superior. *C. formosa*, at all three places. *Chlænius sericeus*, *nebraskensis* and *Brachylobus lithophilus*, at Culbertson. *Hister subrotundus* and *nubilus*, and *Saprinus pennsylvanicus*, *fraternus* and *patruelis*, at Superior. *Carpophilus pallipennis*, at Imperial. *Meligethes mutatus*, at Superior. *Hydnocera subfasciata*, at Imperial. *Ptilinus thoracicus*, at Superior. *Canthon nigricornis*, at Imperial; I have the same species from Florida. *Canthon ebenus*, at all three places. *Aphodius ruricola*, at Superior and Culbertson. *A. dentiger*, at Superior. *A. walshii*, at Superior and Imperial. *Lachnosterna crassissima*, at McCook. *Polyphylla* 10-*lineata*, at Imperial; very far east for this species. *Cremastochilus knochii*, at Superior. *C. nitens*, two specimens

at Imperial. *Pachybrachus cœlatus*, at Superior and Imperial. *Bruchus pruninus*, at Imperial. *B. siminulum*, at Superior and Imperial. *Eleodes tricostata*, at Superior. *E. extricata*, at all three places. *E. opaca*, at Superior and Imperial. *Blapstinus pratensis*, at Superior and Culbertson. *Blapstinus* sp., at Culbertson. *Nemognatha bicolor*, at Imperial. *Dorytomus mucidus*, at Superior. *Elleschus ephippiatus*, at Superior. *Baris*, sp., at Imperial. *Centrinus denticornis* Casey, in thistle flowers at Imperial. *Sphenophorus parvulus*, at Superior.

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TYPES IN THE NEUMOEGEN COLLECTION.—II.

WITH A FEW NOTES THEREON.

By Dr. RODRIGUES OTTOLENGUI.

Since writing the first instalment of this paper a "type" which was not in the cabinets when I looked through the Sphingidæ, has been put in its place by the curator, Mr. Doll. This is

Smerinthus interfaunus ♂. Long Island, Doll.

This is a hybrid from a male *Astylus* with a female *Ocellata*. (Europe)

ARCTIIDÆ.

Crocota intermedia var. *parvula* ♀ Neum. and Dyar. Colorado, Bruce.*
Arctia intermedia var. *stretchii* ♂. Grote.
Arctia anna ♀ Grote. New York.
Arctia nevadensis var. *mormonica* ♂ (♂♀♀) Neum. Colorado, Bruce.
Arctia nevadensis var. *sulphurica* ♂ Neum. Arizona, Doll.
Arctia nevadensis var. *elongata* ♀ Stretch. Washington Territory.

In the "Revision of the Bombyces" by Neumoegen & Dyar, *mormonica* is cited as a synonym of *A. proxima* Guerin, while *nevadensis* is made a variety of *blakei*, with *sulphurica*, another variety of the same, *elongata* and *ochracea* being synonyms of *sulphurica*. The "type" of *ochracea* is not in the collection.

Arctia favorita ♂♂ Neum. Colorado, Bruce.
Arctia dieckii ♂ Neum. British Columbia.

Arctia dieckii, in the "Revision" is made a synonym of *determinata* Neum. which is cited as a var. of *williamsii*. I did not find the "type" of *determinata*, though the label may have been transferred to the "type" of *dieckii*.

* I think it proper to credit Mr. Bruce, for discovering new species, as well as Morrison and Doll.—R. O.

Arctia figurata var. *excelsa* ♂ (♂♀♀) Neum. North Carolina.
Arctia snowi ♀ (♀) Grote.
Arctia placentia var. *flammæ* ♀ Neum. Florida.

In the "Revision" *snowi* is also a variety of *placentia.*

Arctia decorata ♂ (3 ♂ 5 ♀) Saund. Long Island.

Besides the 'type" there are eight specimens, reared from a single brood of larvæ by Mr. Doll. There are red and yellow secondaries of both sexes, and there are two males in which the black border of the secondaries is replaced by hyaline edges as wide as the original border. Mr. Doll also had a female from same brood with hyaline secondaries.

Kodiosoma eavesii ♂ (♂) Stretch. California.
Nemeophila geddessii ♂ Neum. British Columbia.
Antarctia rubra ♂♀ Neum. Mount Hood.
Antarctia rubra var. *danbyi* ♂ (♀) Neum. & Dyar. British Columbia.

Antarctia rubra is also the "type" of a new genus—*Elpis* Neum. & Dyar.

Antarctia beanii ♂ (♂♀♀) Neum. Laggan.
Antarctia beanii var. *fuscosa* ♂ (♀) Neum. Laggan.

Antarctia beanii is also the "type" of a new genus—*Neoarctia* Neum. & Dyar.

Euchætes vivida ♂ (♀) Grote. Texas.
Euchætes yosemite ♂ Hy. Edwards. California.
Euchætes zonalis ♀ Grote. Arizona, Morrison.
Euchætes perlevis ♂♀ Grote. Arizona, Morrison.
Euchætes conspicula ♂♂ Neum. Colorado, Bruce.

A note by Mr. Neumoegen says that *conspicua* is a synonym of *spraguei.*

Arachnis zuni ♂ Neum. New Mexico.
**Nelphe carolina* ♂ Hy. Edwards. Florida.
Halisidota mixta ♂♀ Neum. Arizona, Morrison.
Halisidota minima ♂. Arizona.

Adjacent to this is a specimen labeled *Halisidota armillata* ♂ Hy. Edw., from Jalapa, Mexico, which Mr. Neumoegen considered a synonym of his *minima.*

Halisidota sanguinenosa ♂ Neum. Vancouver.

A brilliant cherry red. The most beautiful of the genus. This is a synonym of *roseata* Walk.

Euhalisidota pura ♂♀ Neum. Arizona, Morrison.

* Type also in Edwards' collection—American Mus. Nat. History, N. Y. City.

LIPARIDÆ.

Artaxa ingenita ♀ (♀) Hy. Edwards. Arizona, Doll.

Neumoegen and Dyar make this new genus, *Dalcerides.*

Varina ornata ♂ (♀) Neum. Florida.

This is a synonym of *Acherdes ferraria.*

Dyaria singularis ♂ Neum. Maine.

Type of genus as well as species.

LIMACODIDÆ.

Monoleuca obliqua ♂ Hy. Edwards.
Limacodes trigona ♂ Hy. Edwards. Arizona, Doll.

PSYCHIDÆ.

Pseudopsyche exigua ♂ Hy. Edwards. Arizona, Doll.

Type of genus as well as species.

NOTODONTIDÆ.

Ichthyura inornata ♂ ♀ Neum. Arizona, Doll.
Ichthyura strigosa (♂ ♀) Grote. Maine.
Ichythyura alethe ♀ Neum. and Dyar.
Apatelodes indistincta ♂ (♀) Hy. Edwards. Florida.
Nadata gibbosa var. *rubripennis* ♂ ♀ Neum. and Dyar.
Nystalea indiana ♀ Grote. Florida.
Hyparpax venus ♂ (♂) Neum. Colorado, Bruce.
Hyparpax venus var. *tyria* ♂ (♂)? Slosson. Florida.

Some time ago I was visiting Mr. Graef, who had just received a pair (♂ ♀) *H. venus* from Mr. Bruce, and he expressed the belief to me that *venus* is but a local race of his *aurostriata.* In this connection the form *tyria* may be instructive. There are two specimens, side by side, in the Neumoegen collection, one of which is marked as "type" of *tyria*, while the other has no label whatever. The latter specimen is identical in color with *aurostriata*, while the "type" is a good intergrade. It is curious that this should be found in company with *aurostriata*, that is to say in Florida.

Cerura modesta ♂ Hudson. Adirondacks.
Melia (?) *danbyi* ♂ Neum.
Notodonta notaria ♂ Hy. Edwards. Colorado.

CERATOCAMPIDÆ.

Sphingicampa bicolor var. *suprema* ♂ (♀) Neum. Kentucky.
Sphingicampa bisecta var. *nebulosa* ♀ Neum. Kentucky.

Eacles imperialis aber. *punctatissima* ♂ Neum. New York.
Eacles imperialis var. *nobilis* ♂♀ Neum. Texas.
Citheronia regalis aber. *sængeri* ♂ Neum. New York.

SATURNIDÆ.

Attacus gloveri var. *reducta* ♂♀ Neum. Colorado, Bruce.
Telea polyphemus var. *oculea* ♀♀ Neum. Arizona, Doll.
Hyperchiria io var. *argus* ♂ Neum. and Dyar.
Hyperchiria pamina ♂♀ Neum. Arizona, Doll.
Hyperchiria pamina var. *aurosea* ♂ (♀) Neum. Arizona, Doll.

BOMBYCIDÆ.

Pseudohazis eglanterina aber. *denudata* ♂ (♂) Neum. Utah.

Here is a curious case. Many entomologists deprecate the naming of aberrant forms. Here we find a name given to a single specimen, an aberration, which is subsequently duplicated from the same locality. This gives color to my claim that aberrant forms are the initial departures from type, which are the precursors of new varieties, races, etc.

Pseudohazis eglanterina var. *marcata* ♂ (5 ♂) Neum. Oregon.
Hemileuca yavapai ♂♀ Neum. Arizona, Doll.
Hemileuca hualapai ♀ Neum. Arizona, Morrison.
Hemileuca neumoegeni ♂♀ Hy. Edwards. Arizona, Doll.
Cnethocampa grisea ♀ (♀) Neum. Arizona, Doll.
Clisiocampa incurva ♂♀ (♂♀♀) Hy. Edwards. Arizona, Doll.
Clisiocampa incurva var. *constrictina* ♂ Neum. and Dyar.
Clisiocampa mus var. *discolorata* ♂♂♂ ♀♀♀ Neum. Utah.

COSSIDÆ.

Aon noctuiformis ♂♂ Neum. Texas.

Type of genus as well as species.

Hypopta bertholdi ♂ Grote. Colorado.
Hypopta henrici ♂♀ Grote. Colorado.
Hypopta manfredi ♂♂ Neum. Arizona, Morrison.
Hypopta edwardi ♂ Neum. and and Dyar. Colorado, Bruce.
Hypopta ethela ♂ Neum. and Dyar. Colorado, Bruce.
Hypopta cornelia ♂ Neum. and Dyar. Colorado, Bruce.
Cossus perplexus ♂ Neum. and Dyar. Colorado, Bruce.
Cossus mucidus ♂ (♂) Hy. Edwards. Arizona, Morrison.

HEPIALIDÆ.

Hepialus roseicaput ♂ Neum. and Dyar. British Columbia.
Hepialus sangarri ♂ Neum. California.

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PHILADELPHIA, PA., NOVEMBER, 1895.

TO WHOM SHOULD WE LOOK FOR SUBSCRIPTIONS?

SOME days ago an entomologist in another city asked one of our friends if that journal the NEWS was still in existence? he replied that it was, and very much so. The man from the other city thought the NEWS was dead because he failed to send us the small sum of one dollar, and consequently did not receive the journal. There are many people who think the NEWS should be sent to them free because they are entomologists, and perhaps, also, because they think themselves "some pumpkins" in the fraternity. Now, who should support entomological journals? Should the mason, the carpenter, or the shipwright pay for the NEWS so that the entomologist might get it free? We also wish to say a word to those who say they can't raise a dollar to pay for the journal. There is not a person who would care to have an entomological publication who could not save a dollar a year. There are many luxuries and useless expenditures that could be cut down in a whole year and not one dollar saved, but many. Take one of these dollars and subscribe to the NEWS and get many dollar's worth of mental pabulum. Another way would be to get a box and put in it two pennies a week, and in a year you would have one dollar and four cents. The journal "Papilio" had a large complimentary subscription list and no one of "these dead-heads" objected to receiving the publication, but when asked to pay a small sum for what they received they, of course, failed to respond. Such things should not be, and will not be in the case of ENTOMOLOGICAL NEWS.

H. TYLER TOWNSEND has removed to Las Cruces, New Mexico.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Brunswick, N. J.

The Elm Leaf Beetle.—At the meeting of the Economic Entomologists at Springfield, Mass., several communications were read on the subject of the Elm Leaf Beetle, and several notable experiences were brought out, mostly as the result of work done by or under the direction of competent entomologists. I did not have at that time the report on some experiments made at West Point, N. Y., and as these are decidedly interesting and of practical importance, it is presented here; but first a few words of explanation.

Lieutenant William Weigel, U. S. A., is in charge of the grounds at the post, and it is his duty to see that everything is kept in order and in as good a condition as possible. For a number of years past the elms, which form the bulk of all the trees on the post, have been defoliated by the beetles or their larvæ, until it became a question whether it would not be better to cut them down rather than to allow them to die gradually. Lieutenant Weigel is a graduate of Rutgers, and conceived the idea that possibly the entomologist, whose course he did not take when at college, might be able to help him out of the difficulty with his elm trees. He therefore called upon me late in the Winter, stated his case, and received Bulletin No. 103 of the College Experiment Station, together with full verbal directions on several minor points not touched upon in the Bulletin, but set out in full in my Report for 1894. The insecticide recommended was the arsenate of lead, and his report stripped of any introductory and concluding matter is as follows:

"Now for my report. We have here, within the limits of the Post, 498 elm trees of various sizes, and perhaps made up of three or four varieties. I followed your instructions implicitly, as contained in your pamphlet, both as to time of spraying and mixture to be used. I used arsenate of soda and acetate of lead in the proportions which you gave and also used common black molasses to give the proper adhesive property to the mixture. My whole plant consisted of:—

"1 steam fire-engine, . . .	1 man (engineer), to run same.
1 water-wagon (street sprinkler, capacity 350 gals.).	
1 team and wagon to haul mixture and to change position of plant	1 man (teamster).
To climb trees and use spray. .	2 men.
Total	4 men.

"Attached to the fire-engine I had two lengths of ¼" hose, each about 200 ft. long. By this means I was enabled to reach all trees within a radius of 500 ft. I used the straight nozzle instead of a sprayer, for I found the latter scattered the stream too much and did not allow the mixture to be thrown far enough. Each tree was sprayed very carefully by men on ladders, and I found that it took about 40 gals. of mixture to spray one good-sized elm well, and that with the above plant and number of men I could spray about 50 trees in a day, located, as they are here, quite near each other. I sprayed all the trees three times, and, as a result, not a single tree lost its leaves from the ravages of the beetle or worm, nor has a single tree had to put forth a second crop of leaves.

"This speaks well, when we consider the situation last year about the latter part of July. Many trees were entirely bare of leaves and looked as though they had been near a very hot fire; further, one-half of the trees had to put forth a second crop of leaves, and in two instances I think a third crop put in an appearance. True, last Summer (1894) was very favorable for the insect, because it was very warm and dry, whereas this year we had a delightfully cool July, and we were favored by several very heavy storms.

"Several of the oldest residents of the Post, who have the interest of West Point at heart and who have watched with much interest and attention the various attempts made to save the elms of the Post, state that the elms look better this year than they have any year since the beetle first put in its appearance. This, I think, speaks well for your remedy, for the beetles appeared in great numbers and early in the season this year. I further discovered that the mixture did not injure the most delicate plants in the front yards, nor did the mixture distress or injure the men who handled it, further than perhaps a slight irritation of the throat at the start, but which soon passed away."

"Next year I propose to start a little earlier, and also shall make an attempt to destroy many of the beetles before they reach the elms."

This report is, of course, extremely satisfactory, and perhaps one reason for it is to be found in the statement made by Lieutenant Weigel that he followed directions "implicitly," a little point that is altogether too often forgotten by those who undertake to apply insecticides. Of course, the application was a was teful one, but it was made with the apparatus at hand. It did not need a fire-engine, because a one- or two-horse power, small steam-engine mounted on a tank-wagon would have answered the purpose just as well. Using a straight nozzle instead of a graduating one, which would throw a spray, doubled the quantity of material required and also the length of time necessary to do the spraying. Even a coarse spray would cover very much more rapidly than a jet, and possibly for such purposes the new Ball nozzle might prove serviceable. At all events the report proves, and this is the real reason for its presentation here, that it is absolutely possib'e to preserve trees on a large scale from the ravages of this insect.

Scolytus 4-spinosus Say.—In the last number of the NEWS was published a picture illustrating the work of this insect. In the original plate as it appeared in "Garden and Forest," the picture was nearly double the length and illustrated, in natural size, a piece of bark torn from a hickory tree that had been killed by these insects. It has been my fortune to see more of the work of this insect during the present year than ever previously; not only in New Jersey, but in western Pennsylvania, where I spent three days in the vicinity of Pittsburg during the latter part of July.

In 1894 the insect was complained of as injuring certain trees not far Newark, N. J., on the grounds attached to certain suburban residences. Glen Ridge, which is the name of the little town referred to, was originally woodland, and when the place was laid out the forest was preserved just as far as was consistent with laying out streets and building residences. There are, therefore, quite an unusual number of forest trees in this little town, and in the hills back of it, and heretofore they have been among the chief ornaments of the place. Hickories are quite abundant and they did well, apparently, until two or three years ago, when occasionally a tree died off. In 1894 the dying became so general that alarm was created, and when I visited the village I found that everywhere hickories were infested by this *Scolytus*. Its little round holes could be seen abundantly on the bark of the trees, and associated with it in the work of injury were certain Buprestid larvæ, probably belonging to the genus *Dicerca*, because I found specimens of this genus on the bark, and there was also a longicorn at work, although I had no means for determining the exact species.

I was a good deal interested when I found in the vicinity of Natrona, Allegheny County, Penna., in little patches of woodland, that a large number of hickories were dying from the same cause. Trees were found there in all stages; some of them apparently yet entirely healthy, though the trunk was peppered by the little shot holes; some just dying and the leaves withering; some of them dead, not having leafed out at all during the Spring of 1895. Others there were with only a few holes here and there through the bark, and healthy in appearance so far as the look of the foliage was concerned, but evidently infested and doomed if the insect be allowed to continue unchecked. I have noticed elsewhere, since my attention has been called to the matter, dying hickories in all parts of the State of New Jersey. Apparently, for some reason, this insect has taken a start and has done, and probably will continue for some time to do, considerable damage. I have had in my laboratory for some time a section of a trunk, two feet long and about seven inches in diameter, cut from one of the dying trees at Natrona. I was desirous of getting the beetle in some numbers, and of getting also all stages, but find that, apparently, the insects do not develop while in drying wood. It seems as if they require a certain amount of living tissue or moisture for their development. In this respect they differ from *S. rugulosus*, which will develop just as readily in wood that is entirely dead as in that which is simply weakened.

Associated with the injury by the *Scolytus* at Natrona, I found also the exit holes of what was apparently a longicorn, and I found also a few longicorn larvæ in wood that was split when the trees were cut down. These may have been *Cyllene pictus*. In trees that were entirely dead, and from which the bark had been loosened I also found specimens of *Tremex columba* which had died in the effort to emerge, and I was not able to decide the question satisfactorily whether, as a matter of fact, the *Scolytus* was the first one to attack the healthy trees or whether they had been weakened by some other attack previously.

In the case of the trees at Glen Ridge, N. J., there was an adequate reason for the attack by insects, since from their situation they had been deprived of moisture and nourishment for a long series of years past, which had probably resulted in greatly weakening them. For the trees at Natrona no such reason could be assigned. To be sure there had been a drought the year before and everything was at the time of my visit suffering from lack of rain, but this could scarcely have been sufficient to account for the enormous development of the insect, especially as many of the trees had evidently been attacked several years ago.

The problem of dealing with insects of this kind is one that is by no means solved, and indeed we are, to a very considerable extent, helpless against the creatures. My observations indicated that there was at least two broods of the *Scolytus* in the course of the season, and as we have no insecticides that can penetrate and kill the larvæ under the bark, we are reduced to efforts to keep the specimens out, and this is a task by no means easy, considering the habits of the insect. It was noticed, both in New Jersey and Pennsylvania, that a great many of the beetles developed about mid-Summer a fondness for boring into young twigs just below the point from which the leaves started, so that here and there throughout the tree, there were little bunches of leaves wilted, which eventually dried and fell to the ground. This is an injury that cannot be prevented, so far as I am able to see, and apparently these short burrows were made by the beetle for food alone, since I never found any attempt to oviposit in such places. But, while the trunks are undoubtedly the favored point of entrance for the insects, yet I found that if there was any reason why they should not lay their eggs there they had no objections at all to even comparatively small branches. While we may protect a trunk against the entrance of these insects by smears or washes, it is a difficult matter to protect also all the branches, and the subject of dealing with bark boring pests on large trees is one that deserves the careful consideration of economic entomologists. It is in the hope of getting the experience of other students, who may also have observed this insect, that this subject is presented here. The picture illustrates a typical gallery, not quite complete in the picture as shown in the last number, but the form of the central burrow and the method of branching in the larval burrows is characteristic, and well shown. This piece of bark was taken from a tree entirely dead, and the tree, which was a large one, nearly eighteen inches

in diameter, had scarcely an inch of sound sap wood so far as it was laid bare by me. The specimen from which the photograph was made was practically the only one that showed an entire set of galleries fairly well. Almost everywhere else they were so intermingled that it was impossible to get an isolated single set.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

"THE muscular power of the Flea is so great that it can leap to the distance of two hundred times its own length, which will appear the more surprising when we consider that a man, were he endowed with equal strength and agility, would be able to leap between three and four hundred yards."

"MAMMOTH CAVE, in Kentucky, is getting to be a gigantic beehive," says a Cincinnati man. "The last time I went through the cave I took both the long and short routes, as they are called. At several places there were rather too many bees for me to feel entirely comfortable, although I was not attacked by any of them. If the cave should be explored for honey some rich finds would undoubtedly be made. The bees are increasing constantly."—*Newspaper.*

WHILE out collecting July 19, 1895, on the Diamond Hill road near this place I was surpised by seeing a strange looking butterfly fly past me going at a great rate of speed. I immediately gave chase, and, after a hard run of about four hundred yards, I caught it as it settled on some milkweed blossoms near the roadside, and to my great surprise I found it to be a specimen of *Papilio ajax*. Thinking this a catch worthy of notice for this part of the country I thought it would interest some of the readers of the NEWS.—WM. DEARDEN, Lonsdale, R. I.

NATURE STUDY BALKED.—Chicago, Ill., September 16.—The 400 pupils in the South Division High School are very largely in open revolt against a hard bargain which Principal Slocum endeavored to drive with them.

Next month this school is to be practically devoted to nature study, and in anticipation of this Mr. Slocum told the pupils a good mark would be given for every twelve grasshoppers brought in by a pupil. But the plan isn't working successfully, for, out of the 400 pupils, only 15 have brought in grasshoppers. There are just three pupils in the school who are not supporting the revolt. They are the only boys in the school, the number standing: girls, 397; boys, 3. The boys have been catching the grasshoppers and selling them to the girls at ten cents a dozen. Twelve of the girls bought 144 grasshoppers from the boys, and the three boys turned in 36 grasshoppers themselves to keep up appearances. Now the girls will buy no more locusts, and the boys' money-making plan is balked.—*Newspaper.*

I HAVE this year taken seven specimens of *Chrysophanus helloides*, both ♂ and ♀, in this locality. The specimens were very bright and fresh, and must have recently emerged. The dates of capture were September 1 to 12, which would seem to indicate that the species is double brooded. I have it from the West, but all my other examples bear earlier date of capture. Prof. French thinks this a parallel with the case of *Terias mexicana*, which has migrated from the southwestern limits of the United States to Canada. I would be interested to know from your readers date and place of earliest occurrence of *C. helloides* in order, if possible, to show the route traveled, and the time consumed in making its journey from the West. It was first recorded from the Rocky Mountains, I believe, and later West to the Pacific. Its most Eastern limit hitherto, so far as has come under my observation, was western Nebraska. Any one who has taken it in intervening territory will greatly oblige me by reporting the fact.—JOHN L. HEALY, 811 Morse Ave., Chicago.

I have received *Chrysophanus helloides* from Grinnell, Iowa.—H. SKINNER.

GENERAL COUNT DEJEAU, Aide-de-camp to Napoleon Bonarparte, was so anxious, says Jæger, to increase the number of specimens in his entomological cabinet, that he even availed himself of his military campaigns for this purpose, and was continually occupied in collecting insects and fastening them with pins on the outside of his hat, which was always covered with them. The Emperor, as well as the whole army, were accustomed to see General Déjeau's head thus singularly ornamented, even when in battle. But the departed spirits of those murdered insects once had their revenge on him; for, in the battle of Wagram, in 1809, and while he was at the side of Napoleon, a shot from the enemy struck Déjeau's head and precipitated him senseless from his horse. Soon, however, recovering from the shock, and being asked by the Emperor if he was still alive, he answered, "I am not dead; but, alas! my insects are all gone!" for his hat was literally torn to pieces.—*History of Insects*, p. 53.

COLLECTING IN MARYLAND.—Have had very little chance to collect much in this (to me) new locality, but what little I have done has brought

to light many of my old New York friends, the *Catocalæ*. I was told here on the sea-shore I would find *Catocalæ* very scarce, and in few varieties, but in one week's collecting, starting June 24th, I took *Catocala nubilis, elonympha, gracilis, sordida* var., *grynea, fratercula* var., *polygama, clintonii, ultronia, coccinata, ella, uxor* var. *tristis, epione, muliercula, præclara* and four other varieties not yet determined. The woods here are nearly all pine, with scrub oak, pin oak, swamp hickory, swamp maple, swamp gum, yellow poplar and magnolia scattered through them, mostly in clearings where the large pines have been cut. I hardly expected to see *C. tristis* here, yet I took seven in one night, and three *C. coccinata* on another evening. *C. epione* was plentiful and flew just at sundown, the first always to appear. *C. elonympha* was also among the first. I took a fine, fresh example on the 20th of May. I feel sure if I had been able to put in every night from the first of June I could have taken several thousand examples of *Catocala* alone. Other noctuids were plentiful in June, very few in July. Of the Sphingidæ, *C. catalpa* was very plentiful, also *amynator;* also *S. plebeius, A. cherilus* and *myron*, and several others. For a few weeks in June *Callimorpha vestalis* was so common along the edges of the salt marsh that thousands could have been taken in a day, while *Homoptera edusa* and *lunata*, in all sizes and shades of color, literally cover the trees at night. Another year I expect to be able to collect the whole season.—O. D. FOULKS, Stockton, Md.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. LE NATURALISTE CANADIEN, xxii, 8, 9.—The last descriptions of L'Abbé Provancher (cont.).

2. PROCEEDINGS OF THE ROYAL SOCIETY OF VICTORIA, vii (new series)—Contributions to a knowledge of the Rhynchota of Australia, E. Bergroth.

3. INDIAN MUSEUM NOTES. Calcutta, iii, 4.—An account of the insects and mites which attack the tea plant in India, E. C. Cotes.

4. VERHANDLUNGEN DES NATURHISTORISCHEN VEREINS DER PREUSSISCHEN RHEINLANDE, Westfalens, u. s. w., Jhg. 41, pt. 2.—Contributions to the biology of *Phosphænus hemipterus* and allies, C. Verhoeff.

5. Descriptive Catalogue of the Spiders of Burma, T. Thorell, 8vo. British Museum, London, 1895, pp. 406.

6. Classification of the Lepidoptera of Hildesia [Hildesheim?], compiled after the preliminary works of Bates, Scudder, Guilielmus, Mueller, Comstock, Dyar, Chapman, by A. R. Grote.

7. SITZUNGSBERICHTE DER AKADEMIE DER K. P. WISSENSCHAFTEN ZU BERLIN, 1895, Nos. 30, 31.—Contributions to the knowledge of the genus *Melipona* sens. lat., H. Stadelmann.

8. ANNALS AND MAGAZINE OF NATURAL HISTORY. London, No. 93. —Notes on the identity of some of the types of Mygalomorphæ in the collection of the British Museum, R. I. Pocock. On a new sound-producing organ in a spider, ibid.

9. ABHANDLUNGEN DES NATURWISSENSCHAFTLICHEN VEREINS ZU BREMEN, xiv Bd. Heft 1 [abstract].—List of the North American Eupterotidæ, Ptilodontidæ, Thyratiridæ, Apatelidæ and Agrotidæ, by A. R. Grote.

10. BULLETIN SCIENTIFIQUE DE LA FRANCE ET DE LA BELGIQUE. Paris, xxvi.—The Malpighian tubes of the Hymenoptera, L. Bordas.

11. ZOOLOGISCHER ANZEIGER. Leipzig, No. 484.—On the Anatomy of the plant-lice, Aphids, A. Mordwilko.

12. TUFTS COLLEGE STUDIES, No. 4.—The morphology and classification of the Pauropoda, with notes on the morphology of the Diplopoda, F. C. Kenyon.

13. THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION. London, vii, 1.—The resting habit of insects as exhibited in the phenomena of hybernation and æstivism, J. W. Tutt.

14. PSYCHE. Cambridge, Mass., October, 1895.—Revision of the species Spharagemon, A. P. Morse.

15. PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES (2), vol. v [extract].—Coleoptera of Baja California, Supplement i, G. H. Horn.

16. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, pt. 2, 1895 [extract].—Synopsis of the Bembicini of Boreal America, W. J. Fox.

17. TRANSACTIONS OF THE WISCONSIN ACADEMY OF SCIENCES, vol. x. —The sense of sight in spiders with some observations on the color sense, G. W. and E. G. Peckham.

18. CANADIAN ENTOMOLOGIST, xxvii, 10.—Charles Valentine Riley, J. F. Studies in N. A. Membracidæ, iii, F. W. Goding. Some notes on *Bruchus* in New Mexico, C. H. T. Townsend. Preparatory stages of *Alypia langtonii* Couper, H. G. Dyar, Relationship of the fauna of Puget Sound to that of Mexico and Canada, W. H. Patton. *Sphinx canadensis* Boisduval, J. A. Moffat. New Tenthredinidæ, A. D. Macgillivray. *Oenectra flavibasana* Fern., J. A. Moffat. Review of a few more Provancher types of Ichneumonidæ, G. C. Davis. Systematic value of the larva of *Spermophagus*, W. H. Patton. Notes on a trip to the Bahama Islands, H. F. Wickham. List of Lepidoptera taken at Sudbury, Ont., J. D. Evans.

19. TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1895, pt. 3.—Contributions to a knowledge of African phytophagous Coleoptera, pt. 2, M. Jacoby. An attempt to correlate the results arrived at in recent papers on the classification of Lepidoptera, J. W. Tutt. A monograph of the British Braconidæ, pt. 6, T. A. Marshall. Further notes on the secretion of potassium hydroxide by *Dicranura vinula* (imago), and similar phenomena in other Lepidoptera, O. H. Latter. Notes on seasonal dimorphism of Rhopalocera in Natal, C. W. Barker.

20. ACTES DE LA SOCIETE SCIENTIFIQUE DU CHILI, vol. iv, pt. 5.—Material for a study of the entomological fauna of Chili, J. Gribodo. Notes on the ants of Chili, with descriptions of new species, C. Emery. Short contribution to the physiology of insects: on the nature of the liquid which is excreted by some Coleoptera as means of defense, C. E. Porter.

21. BIOLOGISCHES CENTRALBLATT, xv, 18.—Theories concerning the descent (Descendenztheoretisches) of Lepidoptera, T. Garbowski.

22. THE ZOOLOGIST. London, No. 225.—The migration of butterflies, J. E. Harting.

23. THIRTEENTH ANNUAL REPORT OF THE OHIO AGRICULTURAL EXPERIMENT STATION for 1894.—Report of the Entomologist, F. M. Webster.

24. THE ENTOMOLOGIST. London, No. 389.—Notes on the synonymy of Noctuid Moths (cont.), A. G. Butler.

25. THE BUTTERFLIES OF NORTH AMERICA, by Wm. H. Edwards, part xvi.—This part deals with *Parnassius smintheus*, *Satyrus charon*, *Chionobas gigas*, all of which are figured and fully treated of in the usual excellent manner.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper is published; * denotes that the paper in question contains descriptions of new North American forms.

THE GENERAL SUBJECT.

Cotes 3, Webster 23.

MYRIAPODA.

Kenyon 12.

ARACHNIDA.

Thorell 5, Pocock 8 (two), Peckham 17.

ORTHOPTERA.

Morse 14*.

HEMIPTERA.

Bergroth 2, Mordwilko 11, Goding 18*.

COLEOPTERA.

Verhoeff 4, Horn 15*, Townsend 18, Patton 18, Wickham 18, Jacoby 19, Porter 20.

LEPIDOPTERA.

Grote 6, 9*, Tutt 13, Dyar 18, Moffat 18 (two), Evans 18, Tutt 19, Latter 19, Barker 19, Hartig 22, Garbowski 21, Butler 24, Edwards 25.

HYMENOPTERA.

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Doings of Societies.

PHILADELPHIA, OCT. 8, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, 1509 S. 13th St. Members present: Messrs. Bland, Hoyer, E. Wenzel, Trescher, H. W. Wenzel, Dr. Castle, Laurent, Fox, Schmitz, Haimbach and Boerner. Honorary members: Drs. Henry Skinner, George H. Horn and Prof. John B. Smith.

Meeting called to order at 8.40 P. M., President Bland presiding. Prof. Smith stated that the specimens of borers which he had received from Mr. H. W. Wenzel were not the common Peach borer, but the Plum borer, that the finding of it on the Peach interested him very much, and that he considered it well worthy of further investigation, as this species is not recorded as being injurious to the Peach. Dr. Skinner spoke on the life-habits of *Argynnis diana*, referring to a statement made of the males appearing a month or more in advance of the females, and making the query why this should be so; the question was generally discussed without any one throwing any light on the subject. Mr. Laurent exhibited a case of Micro-Lepidoptera collected during the Summer, mostly at Mount Airy, Philadelphia. Prof. Smith stated that he had noted some interesting facts in connection with the vitality of *Scolytus quadrispinosus* and *S. rugulosus*. He had brought with him a hickory log from Alle-

gheny City which was very much infested with the former species, but after the wood became dry all of the larvæ died; this he stated is not the case with *Scolytus rugulosus*, which he had bred in great numbers from dead wood in his laboratory, the species readily boring into the dead wood. Dr. Horn entertained the members with some interesting narrations on the differences between some species of Coleoptera. On motion of Mr. Boerner, Mr. C. Few Seiss was unanimously elected an active member of the Social. No further business being presented the meeting adjourned to the annex. THEO. H. SCHMITZ, *Secretary*.

ENTOMOLOGICAL SECTION OF THE CHICAGO ACADEMY OF SCIENCES. —The regular meeting was held in the Matthew Laflin Memorial Building, Lincoln Park, Friday, October 18th, at 8 P. M. Two papers were presented:—"A Tribute to Prof. C. V. Riley," by Mr. W. E. Longley. "Observations on Collecting Lepidoptera during 1895," by John J. Healy.

ARTHUR J. SNYDER, *Recorder*.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

MAY 23, 1895.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Mr. Wm. J. Fox called attention to the superficial resemblance between *Myzine* and a new genus he proposed to call *Engycystus*. The differences between the two were pointed out. Dr. P. P. Calvert said that he always held it was the business of an entomologist to study the external structure of insects, but the internal as well. He had lately been studying the internal anatomy of the youngest larvæ of two species of Dragonflies. The literature of the subject was mentioned, but no one had studied sections of the eggs. Sections of the young larvæ were studied in *Gomphus* and in *Libellula pulchella*. Observations of interest were made in regard to the alimentary canal and respiratory system. Trachæa were not found in the newly-hatched larvæ. The histological anatomy was dwelt on at length, In discussing the alimentary canal the Malpighian tubercles were mentioned, and in the larvæ in question there were three Malpighian tubercles. In the larvæ of *pulchella* there are traces of the rectal tracheal gills, but not in *Gomphus*.

JUNE 10, 1895.

Meeting held this evening, Mr. Charles S. Welles, Vice-Director, presiding. Mr. Philip Laurent mentioned that two species of Coleoptera: *Hydrophilus ovatus* and *Calosoma sayi*, had been found in numbers in the city, at the electric lights on South Broad Street, by Mr. Fox and

himself. Of the former species nineteen had been found, and of the latter twenty three. Mr. Calvert stated that Mr. Laurent had taken, at Anglesea, Cape May County, N. J., *Tetragoneura semiaquea* Burm., not before recorded from that State. The speaker also said he had lately been studying the dragonflies sent by the California Academy of Sciences, which had been collected in Lower California. One species had been found, not recorded North of Brazil. The northern limit of *Mecistogaster ornatus* was mentioned. No new species were discovered. Mr. George Luccareni was duly elected an associate of the Section.

SEPTEMBER 26, 1895.

Meeting held this evening, Mr. Philip Laurent presiding. Mr. C. F. Seiss put on record the finding in Philadelphia of *Libellula axillena*, the nearest recorded locality being fifty miles distant. He also stated that his brother, Dr. Seiss, had examined the contents of the stomach of a red fox killed in the Adirondack Mountains, New York, and found a half pint of grasshoppers, *Melanoplus bivittatus* Say and *M. femurrubrum*. Mr. Liebeck recorded the finding of *Amara fulvipes* in the city. Mr. Reineck recorded finding *Scymnus punctum* in Philadelphia. Mr. Laurent showed specimens illustrating the life-history of *Eudryas unio*. The larvæ were found on *Euphorbia coloratum*. He also showed larvæ and pupæ of *Papilio philenor*, and spoke of their cannibalistic habits. The full grown larvæ eating those that had just formed chrysalids from larvæ in the same box. The caterpillars were found on *Aristolocha sipho* (Dutchman's pipe). Dr. Horn advised the members to gather fallen twigs of hickory for the purpose of securing Coleoptera from them. Mr. Laurent had tried this and had raised *Heterachthes quadrimaculatus*. Mr. Liebeck had adopted the same plan and had secured *Elaphidion* sp. Dr. Skinner showed larvæ of *Synchlœ lacinia* received from Prof. Cockerell at Las Cruces, New Mexico, and stated that *Synchlœ crocale* had been reared from larvæ of *lacinia*, thus showing they were widely different forms of one species.

Dr. HENRY SKINNER, *Recorder*.

The following paper was read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

Description of the Female Papilio pelaus Fab.

WITH A FEW REMARKS.

By GEORGE A. EHRMANN, Pittsburg, Pa.

Female.—Primaries less falcated than in the male, the segregated buff band on both surfaces is wider and somewhat suffused inwardly. Secondaries are more produced outwardly than in the male, the submarginal lunated spots are six in number on the upper surface, whereas in the male there are but three, the two lunate spots towards the apex are less defined

and buff in color, the rest are brickish red, the same as the two situated between the median and submedian nervures of the male; underside of secondaries the markings are the same as in the male, the tails are one-fourth of an inch longer than in the male.

Of this extremely rare butterfly I had the good fortune lately to procure a fine female from my collector in Jamaica, and, to the best of my knowledge, it is the only example of this sex in North American collections. This *Papilio* always seemed to be of the greatest rarity from Fabricius to the present time, and Fabricius himself seemed to have been unacquainted with the true *P. pelaus*, as he referred it to Cramer's *P. torquatus* ("Cr. Pap. Exot. pl. 177, figs. A and B"). Is it possible that Cramer's figures are so extremely poor that they (*P. torquatus*) will answer for any caudated species of *Papilio?* We are therefore indebted to the untiring energies of the late Joseph O. Westwood for its rediscovery, for after it (*P. pelaus* Fab.) had slept in the vault of oblivion for fifty years Mr. Westwood found a specimen that agreed with the description of *P. pelaus* Fab. in Mr. Edward Doubleday's collection. He, Mr. Westwood, then figured it as *P. pelaus* Fab., with some doubt, in his admirable "Arcana Entomologica," pl. 18, figs. 1 and 2. Later on (p. 107, "Arc. Ento.") he assured himself that he was right in his discovery by finding *P. pelaus* figured in Mr. Jones' unpublished drawings, vol 1, pl. 32, that are in the British Museum Library, so I doubt if the female has ever been recorded until now.

ENTOMOLOGICAL NEWS for October, was mailed September 30, 1895.

HENRY SHIMER, A.M., M.D.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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HENRY SHIMER, A.M., M.D.

Dr. Shimer was born September 1, 1828, in West Vincent, Chester County, Pa., and died July 28, 1895, at Mt. Carroll, Ill. He was known in the community in which he lived as a student, scholar, scientist, physician and distinguished citizen, and seemed to be the friend of every one. He was a conspicuous man, a notable personage, a distinctive and impressive personality, a man of large physical proportions, of massive brain and great intellectual powers. He had an appetency for the truth, and early in life showed an intense hunger for knowledge which resulted in his becoming a student, a learner, and a scholar of large and varied attainments; but he was not a scholastic, not so much a student of books, highly as he valued them, as of the great library of Nature and human life, which urged him on to know their hidden facts and treasures. The scalpel, crucible and microscope became in his hands effective for this work. He desired that others should share in his knowledge, and published freely in scientific journals technical monographs for scholars, and has widely published, in popular form in newspapers, valuable information on varied subjects. As an original investigator and discoverer he was widely known in America and Europe, and his correspondence on these subjects was with scholars in different

nations. He was for a time assistant State Entomologist, and would probably have been State Entomologist, but he was no politician, and politics prevail. He was closely connected in his work with the Smithsonian Institution, and also with scientific societies in Philadelphia and New York. His degree of Master of Arts was given him by the University of Chicago after an examination. His papers on entomological subjects published in the "Proceedings" and in the "Transactions" of the American Entomological Society were as follows:

Description of the Imago and Larva of a New Species of *Chrysopa* (1865); Description of a New Species of *Aleyrodes;* Description of a New Species of *Cecidomyia;* On a New Genus of Aphidæ; Notes on the Apple Bark Louse (*Lepidosaphes conchiformis*), with a Description of a supposed new *Acarus* (1867); Descriptions of two Acarians bred from White Maple; Notes on *Chermes pinicorticis* (white pine louse); A Summer's Study of the Hickory Galls, with Descriptions of supposed New Species bred therefrom (1868).

Doctor Shimer was always deeply interested in educational affairs, and frequently gave expression to the wish that he might have a part in carrying on the work of education after his death. This he has forcibly shown in a practical way, and also his unbounded confidence in Mrs. Shimer, in that he has left his property to her for use in this way as she may deem most advisable. He had published as his opinion that a man should be buried where he has lived, where he has done his work, and where he would be longest remembered, for he wrote:

"We cherish life—we would not die,
We long to live in memory still;
We dread oblivion, that is why
You'll bury me on yonder hill."

(We are indebted for this abstract to one of Dr. Shimer's friends, J. P. Philips, who has published an interesting biography of the doctor.)

THE journal known as "Texas Farm and Ranch," has made arrangements with Prof. F. W. Mally, of Hulen, Texas, to conduct a Department of Entomology and Fungus Diseases, commencing in the number for Oct. 19th. "The national reputation of Prof. Mally and his special study of the insect pests and fungus diseases of the Southwest will inspire confidence in his work and undoubtedly prove beneficial to farmers and horticulturists."

THE AGRICULTURAL ANT (*Atta malefaciens*).

The habits of this Ant were studied in Texas by the late Dr. Lincecum for the space of twelve years, and the result of his investigations was communicated to the Linnæan Society of London by Charles Darwin. It is so extraordinary an account that it must be given in the narrator's own words:

"The species which I have named 'Agricultural' is a large brownish ant. It dwells in what may be termed paved cities, and, like a thrifty, diligent, provident farmer, makes suitable and timely arrangements for the changing seasons. It is, in short, endowed with skill, ingenuity, and untiring patience sufficient to enable it successfully to contend with the varying exigencies which it may have to encounter in the life-conflict.

"When it has selected a situation for its habitation, if on ordinary dry ground, it bores a hole, around which it raises the surface three and sometimes six inches, forming a low circular mound having a very gentle inclination from the centre to the outer border, which, on an average, is three or four feet from the entrance. But if the location is chosen on low, flat, wet land liable to inundation, though the ground may be perfectly dry at the time the ant sets to work, it nevertheless elevates the mound, in the form of a pretty sharp cone, to the height of fifteen to twenty inches or more, and makes the entrance near the summit. Around the mound in either case the ant clears the ground of all obstructions, levels and smooths the surface to the distance of three or four feet from the gate of the city, giving the space the appearance of a handsome pavement, as it really is.

"Within this paved area not a blade of any green thing is allowed to grow, except a single species of grain-bearing grass. Having planted this crop in a circle around, and two or three feet from the centre of the mound, the insect tends and cultivates it with constant care, cutting away all other grasses and weeds that may spring up amongst it and all around outside of the farm-circle to the extent of one or two feet more.

"The cultivated grass grown luxuriantly, and produces a heavy crop of small, white, flinty seeds, which, under the microscope, very closely resemble ordinary rice. When ripe it is carefully harvested, and carried by the workers, chaff and all, into the granary cells, where it is divested of the chaff and packed away. The chaff is taken out and thrown beyond the limits of the paved area.

"During protracted wet weather it sometimes happens that the provision stores become damp and are liable to sprout and spoil. In this case, on the first fine day the ants bring out the damp and damaged grain and expose it to the sun till it is dry, when they carry it back and pack away all the sound seeds, leaving those that had sprouted to waste.

"In a peach-orchard not far from my house is a considerable elevation, on which is an extensive bed of rock. In the sand-beds overlying portions of this rock are five cities of the Agricultural Ant, evidently very

ancient. My observations on their manners and customs have been limited to the last twelve years, during which time the enclosure surrounding the orchard has prevented the approach of cattle to the ant-farms. The cities which are outside of the enclosure as well as those protected in it are, at the proper season, invariably planted with the ant-rice. The crop may, accordingly, always be seen springing up within the circle about the 1st of November every year.

"Of late years, however, since the number of farms and cattle has greatly increased, and the latter are eating off the grass much closer than formerly, thus preventing the ripening of the seeds, I notice that the Agricultural Ant is placing its cities along the turn-rows in the fields, walks in gardens, inside about the gates, etc., where they can cultivate their farms without molestation from the cattle.

"There can be no doubt of the fact that the particular species of grain-bearing grass mentioned above is intentionally planted. In farmer-like manner the ground upon which it stands is carefully divested of all other grasses and weeds during the time it is growing. When it is ripe the grain is taken care of, the dry stubble cut away and carried off, the paved area being left unencumbered until the ensuing autumn, when the same 'ant-rice' reappears within the same circle, and receives the same agricultural attention as was bestowed upon the previous crop; and so on year after year, as I know to be the case, in all situations where the ants' settlements are protected from grainivorous animals.

"I have not the slightest doubt that the Ants plant seeds for the ensuing crop; and my conclusions have not been arrived at from hasty or careless observation, nor from seeing the ants do something that looked a little like it, and then guessing at the results. I have at all seasons watched the same ant-cities during the last twelve years, and I know that what I have stated is true. I visited the same cities yesterday and found the crops of ant-rice growing finely, and exhibiting also the signs of high cultivation, and not a blade of any other kind of grass or weed was to be seen within twelve inches of the circular row of ant-rice."

The Rev. J. G. Wood says (in his "Bible Animals," from whence the above account is taken): "The economical habits of this wonderful insect far surpass anything that Solomon has written of the Ant, and it is not too much to say that if any of the scriptural writers had ventured to speak of an Ant that not only laid up stores of grain, but actually prepared the soil for the crop, planted the seed, kept the ground free from weeds and finally reaped the harvest, the statement would have been utterly disbelieved, and the credibility not only of that particular writer, but of the rest of scripture severely endangered.

"As may be inferred from the above description, the habits of Ants vary greatly according to their species and the climate in

which they live. All, however, are wonderful creatures; and whether we look at their varied architecture, their mode of procuring food, the system of slave-catching adopted by some, the 'milking' of aphides practised by others, their astonishing mode of communicating thought to each other, and their perfect system of discipline, we feel how true were the words of the royal naturalist, that the Ants are 'little upon earth, but are exceedingly wise.'"

———o———

COLEOPTERA OF CENTRAL ILLINOIS.

By A. B. WOLCOTT, Bloomington, Ill.

The species of Coleoptera enumerated in the following list have been taken in the vicinity of Bloomington, Ill., and with very few exceptions they were taken since the last of September, 1894. I am greatly indebted to Messrs. W. M. Hill and C. C. Adams for the identification of many of the following:

CICINDELIDÆ.

Cicindela sexguttata *Fabr.*
" punctulata *Fabr.*
" repanda *Dej.*
" " 12-guttata *Dej.*

CARABIDÆ.

Calosoma willcoxi *Lec.*
" calidum *Fabr.*
Clivina (americana?) *Dej.*
Tachys nanus *Gyll.*
" flavicauda *Say.*
Evarthrus sodalis *Lec.*
Amara exarata *Dej.*
Platynus extensicollis *Say.*
Galerita janus *Fabr.*
Lebia grandis *Hentz.*
Chlænius diffinis *Chaud.*
Agonoderus pallipes *Fabr.*
Metabletus americanus *Dej.*
Anisodactylus discoideus *Dej.*
" baltimorensis *Say.*
" interstitialis *Say.*

HYDROPHILIDÆ.

Hydrocharis obtusatus *Say.*
Cercyon hæmorhoidalis.
" melauscephalus *Linn.*

SILPHIDÆ.

Necrophorus americanus *Oliv.*
Silpha surinamensis *Fab.*

STAPHYLINIDÆ.

Pæderus littorarius *Grav.*
Aleochara bimaculata *Grav.*
Atimeles cava *Lec.*

PHALACRIDÆ.

Olibrus nitidus *Melsh.*

COCCINELIDÆ.

Megilla maculata *DeG.*
Hippodamia convergens *Guer.*
" 13-punctata *Linn.*
" parenthesis *Say.*
Coccinella novemnota *Hbst.*
" sanguinea *Linn.*
Anatis 15-punctata *Oliv.*
Chilocorus bivulnerus *Muls.*
Hyperaspis proba *Say.*
Adalia bipunctata *Linn.*

ENDOMYCHIDÆ.

Endomychus biguttatus *Say.*

EROTYLIDÆ.

Megalodacne fasciata *Fab.*
Languria mozardi *Latr.*

CUCUJIDÆ.

Cucujus clavipes *Fab.*
Læmophlœus punctatus.
" fasciatus *Melsh.*
Brontes dubius *Fab.*
Silvanus planatus *Lec.*
" surinamensis *Latr.*

HISTERIDÆ.

Hister lecontei *Mars.*
Hololepta fossularis *Say.*

NITIDULIDÆ.

Prometopia 6-maculata *Say.*
Ips fasciatus *Oliv.*

TROGOSITIDÆ.

Tenebriodes mauritanica? *Linn.*
" castanea *Melsh.*

ELATRIDÆ.

Alaus oculatus *Linn.*
Melanotus communis *Gyll.*
Drasterius elegans *Fab.*

LAMPYRIDÆ.

Chauliognathus pennsylvanicus [*DeG.*

MALACHIDÆ.

Callops 4-maculatus *Fab.*

CIOIDÆ.

Ennearthron mellyi.

LUCANIDÆ.

Lucanus dama *Thunb.*
Passalus cornutus *Fab.*

SCARABÆIDÆ.

Canthon lævis *Drury.*
Copris anaglypticus *Say.*
" carolina *Linn.*
" minuta *Lec.*
Aphodius fimetarius *Linn.*
" granarius *Linn.*
" inquinatus *Hbst.*
Bolbocerus farctus *Panzer.*
Geotrupes splendidus *Fab.*
Trox æqualis *Say.*
" suberosus *Fab.*
Pelidnota punctata *Linn.*
Ligyrus gibbosus *Burm.*
" relictus *Say.*
Trichius affinis *Gory.*

SPONDYLIDÆ.

Parandra brunnea *Fab.*

CERAMBYCIDÆ.

Cyllene robiniæ *Forster.*
Tetraopes tetraophthalmus *Forst.*
Leptostylus macula *Say.*

CHRYSOMELIDÆ.

Chrysochus auratus *Fab.*
Doryphora decemlineata *Say.*
Gastroidea polygoni *Linn.*
Diabrotica 12-punctata *Oliv.*
" vittata *Fab.*
" longicornis *Say.*
Galeruca xanthomelæna *Schr.*

TENEBRIONIDÆ.

Nyctobates pennsylvanicus *DeG.*
Tenebrio tenebrioides *Beauv.*
Diaperis hydni *Fab.*
Hoplocephala bicornis *Oliv.*
Platydema ruficorne *Sturm.*

MELANDRYIDÆ.

Eustrophus bicolor *Fab.*

ANTHICIDÆ.

Notoxus monodon *Fab.*
Anthicus cervinus *Laf.*

MELOIDÆ.

Epicauta pennsylvanica *DeG.*

RHYNCHITIDÆ.

Rhynchites bicolor *Fab.*

CURCULIONIDÆ.

Pissodes strobi *Peck.*
Acamptus rigidus.

SCOLYTIDÆ.

Xyleborus cælatus *Eich.*

ANTHRIBIDÆ.

Cratoparis lunatus *Fab.*

WIND AND LIGHT *vs.* COCOON MIMICRY.

By HERMANN HORNIG, Phila., Pa.

As in the NEWS only one location is given so far where *Anthocharis genutia* has been taken, I would like to add two more places within easy reach of Philadelphians. In the Spring of 1893 I caught some specimens between Morris Station and Pen sauken Creek a few miles from Camden, N. J. On May 5, 1895, I caught three males and three females at Almonessen, Gloucester County, a few miles from Woodbury, N. J. The day was quite hot (85°), and all specimens were taken near noontime, most flying in the road in a northeasterly direction. Also one fine specimen of ♂ *Attacus luna* was found. I have raised this season, very successfully, pupæ of *Attacus cecropia*, and have been very much interested in the article, "Cocoon Mimicry" in the May number of the NEWS. I have fed the larvæ on the leaves of *Prunus serotina* only, and the color of some of the cocoons are also white and some brown. But I am of a different opinion as to the cause of color given in above-mentioned article. As the breeding-cage situated in the open yard became too small for the number of larvæ to spin their cocoons, I transferred the full-grown larvæ to another cage in my study and every cocoon spun there is white; the frame wood is walnut and the wire netting is green.

Mrs. Annie Jackson, who has been my faithful helper in collecting and has taken care of all larvæ during my absence, is of the same opinion as I am: that the less wind and sunshine the larvæ have shortly before and during the spinning process the whiter the cocoon will be. The cocoon afterwards exposed to the wind and weather will turn darker. I would like to hear the opinion of others in this case, as it seems reasonable to me that the larvæ in the flag had little air and also darkness. But I can't find any reason to account for some cocoons being smooth and others fluffy? Perhaps some of the NEWS readers can answer this question.

———o———

NOTES ON COLLECTING COLEOPTERA.

By FRANK S. DAGGETT, Duluth, Minn.

During the past ten years I have devoted more or less time to the collecting and study of Coleoptera at the head of Lake Superior, but owing to the absence from the city of others inter-

ested in that study I have been obliged to rely entirely upon information gleaned from journals and the actual experience gained by field observation. The first thing made apparent was the periodical scarcity of certain insects followed in time by seasons of plenty, in which I learned to lay by a supply to draw upon during the long years of disappearance.

Every collector keeps in mind some favorite spot where, in years gone by, some lucky find has endeared it to him, and with what eager anticipation he visits it from time to time! Each year other spots are added until his entomological trips take the form of great circles with lucky spots strung all along like beads. One day I accidentally discovered that all my circles had been jumbled together and centered in one straight line along the shore of Lake Superior, and thereafter by watching the temperature and direction of winds, was always sure of finding a great variety of insects and among them many rare ones.

One Spring, after a heavy warm rain, I visited the beach for an afternoon's outing with the children, and they delight in such outings after being housed through the long Winter. The river poured a yellow flood out over the dark blue waters of the lake which the waves caught and spread with its débris of chips, bark and driftwood, over a broad expanse. These fragments were all carrying their load of life; it happened to be, this time, mostly Carabidæ, particularly *Calosoma calidum*, with a sprinkling of every sort usually found under logs, stones and in low damp situations; all caught by the sudden rise of waters and floated on these handy life-preservers to whatever spot fate might take them. Every wave brought them tumbling onto the sands, although they were time and again carried back, until some splash heavier than usual landed them where they had time to crawl up the logs and higher places on the sand, where the general warmth of the sun drove away the chilliness caused by the water, when they flew away among the trees back of the beach or hid under the drift wood. My greatest harvest, however, came not through the accident of a freshet, but by the warmth and general awakening of insect life in what we call the early Spring—the latter days of May, even though there may be ice in the hidden nooks along the north shore. Long after visitors from other cities make their appearance upon our streets clad in straw hats and light colored clothing, the chill from the icy waters of the lake pene-

trates the surrounding country and its effect upon vegetation is quite marked. Trees that have put on their livery of green twenty-five miles away are here but showing the swelling bud. Plant life has forced its way to the surface in sheltered nooks; the lawns have taken on their tinge of green, but the chill air seems to call a halt until some day a balmy zephyr from the great prairies of the Dakotas drifts this way and overcoats are laid aside. The zephyr may increase to a gale—all the better for our purpose. Its effect on all life is magical, Spring has come. Business hours are cut as short as possible, and every one does honor to the occasion in his own sweet way. For my part I wait patiently, knowing that after the first day of heat thousands, yes, millions of insects, warmed by the gentle breath of Spring will seek every point of vantage from which to spread their wings, and I know full well that as soon as they circle out from the protecting brush and tree, some life-giving wave of air will carry them far out over the icy waters of the lake where they alight or fall exhausted. This continues during the three days which these early warm waves last; then the reaction comes. The heated air rises, the cold lake air rushes in driving away by its chill all signs of insect life, but with it comes a vast horde of hapless ones, infinite in numbers, and often of great variety. You stand upon the sandy beach at the edge of the water—a piece of driftwood floats in like a ship of state, for it carries many a royal passenger; the wave that casts it at your feet takes back as toll two-thirds of the passengers, but there are enough left to satisfy the most exacting collector; besides, why wait for ships of state when the beach is fairly covered with fragments under which lie a great variety, and from which one has only to avoid the common species. A barrel-hoop projecting from the sand furnished over thirty specimens of the smaller sorts, the larger ones resorting to the ends and tops of half buried logs. The afternoon of which I write I secured forty-three specimens of *Harmonia* 14-*guttata* and twenty-six of *H. maculata*. Usually one particular beetle predominates; this time it was the female of *Corymbites virens*, one might have taken a pint of them alone. It was two weeks later before I secured the males in quantity from tag alder bushes by beating. *Anatis* 15-*punctata* were also very numerous. One year *Dicerca divaricata* lay about the sands, sometimes a dozen in a single footstep, but these had not been in the water, but

seemed to have dropped onto the hot sands and perished. Among them that year were a great number of *Dicerca tenebrosa*, for I secured over two hundred perfect specimens that afternoon. The conditions seemed to be particularly favorable for Coccinelidæ of which I secured a good series of the following :

Anisosticta strigata,
Hippodamia 5-signata,
" *convergens*,
" *13-punctata*,
" *parenthesis*,
Coccinella trifasciata,
" *9-notata*,
" *transversoguttata*,
" *monticola*,
" *tricuspis*,
Harmonia picta,
" *14-guttata*,
" *12-maculata*,
Mysia pullata,
Anatis 15-punctata,
Chilocorus bivulnerus,
Exochomus tripustulatus,
Hyperaspis lateralis,
" *undulata*,
Epilachna borealis.

Two years in succession, 1891 and 1892, I intended to take full advantage of the usual opportunity, but the warm waves failed to materialize, or else came too late to meet the conditions, and the insects appeared in a slow and unsatisfactory (by comparison) manner. Even when the warm waves came at the proper time one had to be on hand to receive the full benefit for, by the second day after the warm spell, nearly every insect had either died and dried up or had sought more congenial quarters than that furnished by the driftwood and dry sand.

Any collector visiting Duluth during late May or first half of June will find the beach along Minnesota Point well worth an investigation, and he may be fortunate enough to strike conditions above described.

———o———

Some Notes on May and June Collecting around Chicago, Ill.

By W. E. LONGLEY.

Lepidoptera collecting has been generally good so far this year. May and June have been warm with very little rain. *Papilio ajax* made its appearance in considerable numbers in June in some localities though but few good specimens were taken by any one. I did not take a single good specimen. In former years *ajax* has been seldom taken here. *P. philenor*, *troilus* and *turnus* usually rare, have been occasionally taken; *philenor* more

than usual in former years. *P. asterias* is not as common as usual. *Argynnis cybele* and *aphrodite* have been very abundant, and *idalia* has appeared within the last fortnight in goodly numbers, but they (all *Argynnis*) have been nearly all males. Could have taken hundreds of males, but with my best exertion have taken about half a dozen females of each. *A. idalia* has heretofore been quite scarce.

I have not taken a half dozen good *Pieris protodice* in the last ten years' collecting until this year. I find them everywhere this year and have taken more than a hundred good ones. *Pyrameis huntera* is less common than last year, and all the specimens I have taken are unusually small. *P. cardui* usually more common than *huntera:* was rarely seen last year or this. *Phyciodes nycteis* was more abundant than usual, and *P. tharos* var. *marcia* was common. *Chrysophanus thœ* is not common here. I have taken more good specimens this year than usual. *C. hypophleas* was quite abundant in one or two localities in May, but is not generally found. The light form of *Plusia simplex* appeared in large numbers May 10th around the lilac blossoms. The darker form and also *P. precationis* are now abundant. The small form of *Drasteria erechtea* appeared early in May, but soon disappeared. The latter part of June the larger form appeared, and is now abundant. *Leucania unipunctata* has been very scarce as compared with former years. *L. phragmatidicola* appears to have taken its place. *L. pallens*, *albilinea*, *commoides* and *pseudargyria* appeared in limited numbers. *Parallelia bistriaris*, usually rare, has this year been abundant. *Hadena arctica* made their appearance June 10th in their usual abundance. I took all I could at one sweep of the cyanide bottle, from three trees in succession, and found I had thirty specimens. *Mamestra lorea*, usually rare, has been abundant, and *M. renigera* has been common. The other *Mamestras*, *Hadenas*, *Agrotis*, *Noctuas* and *Feltias*, which are usually abundant, have not been so this year. *Crambus laqueatellus* were so numerous in June that the window-screens were covered all the evening. I saw between three and four quarts taken from an electric-light globe, the result of one night's burning. They have now nearly disappeared.

I have taken one *Catocala nubilis*, the only one taken by me in fifteen years' collecting, also one *Caberodes majoraria*, which I never took before. I took two *Militæa phæton* this year. Pre-

vious to that I had one specimen only which I took in central Wisconsin twelve years ago.

I had in my collection one *Spilosoma latipennis*. This year I took five specimens at Benton Harbor, Mich. I have taken one *Pædisca gigantea*, the third specimen in my collecting experience.

Mr. J. L. Healy, who was with me July 4th, took one *Feniseca tarquinius*, rarely found here.

Let us hear from some of the others.

———o———

ADDITIONAL LIST OF INSECTS TAKEN IN ALPINE REGION OF MT. WASHINGTON.

By ANNIE TRUMBULL SLOSSON.

I have already published (ENT. NEWS, vol. v, p. 1; vol. vi, p. 4) two lists of insects taken by myself and friends on the summit of Mt. Washington. These lists include over 500 species. During the present season I have added about 330 names not in my previous lists. All these were taken in alpine region, at or above 5500 feet altitude. Mr. F. C. Bowditch, of Brookline, Mass., did some very interesting collecting on the mountain in Coleoptera this Summer, especially by dredging in the mountain pools. Though he has generously shared his captures in this order with me and urged my adding their names to my list, I have preferred omitting them. I earnestly hope that he will himself soon prepare a paper on the Coleoptera of the mountain with remarks on their distribution and habits. His ability to do this well will be acknowledged by all. I have again been aided materially by specialists in preparing this list. Let me here acknowledge this and thank Messrs. Liebeck, Coquillett, Davis, Ashmead, Banks, MacGillivray, Fox and others for their kindness and assistance.

LEPIDOPTERA.

Rhopalocera.

Grapta J-album *Bd.-Lec.*

Heterocera.

Smerinthus geminatus *Say.*
Scepsis fulvicollis *Hbn.*
Arctia quenselii *Geyer.*
Clisiocampa disstria *Hbn.*
Hepialus hyperboreus? *Moeschl.*
Pseudothyatira cymatophorides *Gn.*
Catocala relicta *Walk.*
Glaucopteryx cæsiata *Bork.*

HYMENOPTERA.

Tenthredinidæ.

Hylotoma meleayi *Leach.*
" scapularis *Klug.*

Hylotoma abdominalis *Leach.*
" cœrulea *Nort.*
Monophadnus rubi *Harr.*
Phymatocera fumipennis *Nort.*
Labidea originalis *Nort.*
Macrophya trisyllaba *Say.*
" n. sp.
Tenthredo mellina *Nort.*
" redimacula *Mac G.*
" novatus *Mac G.* mss.
" coxatus *Mac G.* mss.
" nigricollis *Kirby.*
" barnstonii *Kirby.*
" remota *Mac G.*

Urocerida.

Urocerus albicornis *Fab.*
" cyaneus *Fab.*

Cynipidæ.

Ibalia maculipennis *Hald.*

Ichneumonidæ.

Ichneumon cæruleus *Cr.*
" nanus *Cr.*
" pomilius? *Prov.*
" scitulus *Cr.*
" wilsoni *Cr.*
" n. sp.?
Herpestomus plutellæ *Ashm.*
" n. sp.
" n. sp.
Stilpnus n. sp.?
Phygadeuon n. sp.
" n. sp.
Cryptus limatus *Cr.*
" extrematis *Cr.*
" luctuosus *Cr.*
" n. sp.?
Ophionid, gen.? sp.?
Anomalon nigrorufum *Nort.*
" sp.?
Campoplex n. sp.
Limneria notæ *Ashm.*
" nigripes *Cr.*
" n. sp.?
Mesochorus americanus *Cr.*
Exetastes n. sp.
Mesoliens n. sp.
Eclytus pluralis *Prov.*
Euryproctus n. sp.
Tryphon n. sp.
Euceros medialis *Cr.* [mss.
Mima washingtoniensis n. sp. *Davis*
Thalessa lunator *Fab.*
Ephialtes rufipedibus *Harrington.*
Pimpla conquisitor *Say.*
" novita *Cr.*
Polysphincta limata *Cr.* [mss.
" slossonæ n. sp. *Davis*
Glypta pulchripes *Cr.*
" ruficornis *Walsh.*
" rufiscutellatus *Cr.*
Cylloceria occidentalis *Cr.*
Lampronota jocosa *Cr.*
" parva *Cr.*
" nigropicta *Davis.*
Phytodietus vulgaris *Cr.*
" distinctus? *Cr.*

Braconidæ.

Bracon mellitor *Say.*
" nuperus *Cr.*
" n. sp.
Melanobracon charus *Riley.*
Vipio schwartzii *Ashm.*
Spathius simillimus *Ashm.*
Doryctes incertus *Ashm.*
" mellipes *Ashm.* [mss.
" slossonæ n. sp. *Ashm.*
Rhogas stigmator *Say.*
Ascogaster intermedius *Ashm.* mss.
" pallidicornis "
Apanteles sp.?
Microdus carinoides *Cr.*
" laticinctus *Cr.*
Orgilus mellipes *Say.* [mss.
Microctonus dorsalis n. sp. *Ashm.*
Cosmophorus hopkinsii *Ashm.* mss.
Macrocentrus aciculatus *Prov.*

Chalcididæ.

Perilampus hyalinus *Say.*
Eurytoma diastrophi *Walsh.*
" gigantea *Walsh.*

Torymus flavicoxa *O. S.*
" n. sp.?
Isodroma montana *Ashm.* mss.
Pteromalus puparum *Linn.*
". sp.?
* Semiotellus suborbicularis *Prov.*
Euplectus frontalis *Howard.*
Entedon albitarsis *Ashm.*

Proctotrypidæ.

Pentacantha canadensis *Ashm.*
Aneurhynchus mellipes *Ashm.*
Calotelia marlatti *Ashm.*
Pantoclis analis *Ashm.*
Basalys picipes? *Ashm.*

Scoliidæ.

Tiphia inornata *Say.*

Pompilidæ.

Pompilus scelestus? *Cr.*
" sp.?
Priocnemis alienatus *Sm.*

Philanthidæ.

Cerceris compar *Cr.*

Pemphredonidæ.

Stigmus fraternus *Say.*

Eumenidæ.

Odynerus debilis *Sauss.*
" capra *Sauss.*

Vespidæ.

Vespa germanica *Fab.*

Andrenida.

Prosopis sp.?
Sphecodes sp.?

COLEOPTERA.

Cicindelidæ.

Cicindela purpurea *Oliv.*
" vulgaris *Say.*

Carabidæ.

Notiophilus sibericus *Mots.*
Nebria pallipes *Say.*
Dyschirius globulosus *Say.*
Bembidium versicolor? *Lec.*
" mutatum *G. & H.*
" oblongulum *Mann.*
Tachys incurvus *Say.*
" nanus *Gyll.*
Amara pallipes *Kirby.*
Lebia furcata *Lec.*
Metabletus americanus *Dej.*
Harpalus laticeps *Lec.*
" varicornis *Lec.*
Stenolophus fuliginosus *Dej.*
Bradycellus cognatus *Gyll.*
Anisodactylus harrisii *Lec.*
" rusticus *Dej.*

Hydrophilidæ.

Helophorus inquinatus *Mann.*
Helocombus bifidus *Lec.*
Hydrobius fuscipes *Linn.*

Silphidæ.

Anisotoma assimilis *Lec.*

Staphylinidæ.

Staphylinus vulpinus *Nord.*
Euryporus puncticollis *Er.*
Sunius longiusculus *Mann.*
Tachyporus jocosus *Say.*

Scaphidiidæ.

Scaphidium 4-pustulatum *Say.*

Coccinellidæ.

Coccinella tricuspis *Kirby.*
Harmonia 14-guttata *Linn.*
Anatis 15-punctata *Oliv.*
Hyperaspis bigeminata *Rand,*
Scymnus puncticollis *Lec.*

Cucujidæ.

Læmophlæus biguttatus *Say.*

Cryptophagidæ.

Henoticus serratus *Gyll.*

Dermestidæ.

Byturus unicolor *Say.*

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* Bred from *Agrotis* sp.

Histeridæ.

Hister planipes *Lec.*

Nitidulidæ.

Eupræa truncatella *Mann.*
" labilis *Er.*
Ips fasciatus *Oliv.*

Latridiidæ.

Corticaria sp.?

Byrrhidæ.

Syncalypta sp.?

Dascyllidæ.

Cyphon variabilis *Thunb.*

Elateridæ.

Adelocera brevicornis *Lec.*
Agriotes mancus *Say.*
Corymbytes aratus *Lec.*

Buprestidæ.

Chrysobothris dentipes *Germ.*
Agrilus obsoletoguttatus *Gory.*

Lampyridæ.

Telephorus curtisii *Kirby.*

Cleridæ.

Hydrocera verticalis? *Say.*

Lucanidæ.

Platycerus depressus *Lec.*

Scarabæidæ.

Aphodius hamatus *Say.*
Dichelonycha elongata *Fab.*
" subvittata *Lec.*

Cerambycidæ.

Phymatodes dimidiatus *Kirby.*
Callidium janthinum *Lec.*
Xylotrechus colonus *Fab.*
Clytanthus ruricola *Cliv.*
Gaurotes cyanipennis *Say.*
Monohammus confusor *Kirby.*
Hyperplatys maculatus *Hald.*

Chrysomelidæ.

Donacia subtilis *Kunze.*
" rufa *Say.*
Graphops pubescens *Melsh.*
Chrysomela scalaris *Lec.*
" bigsbyana *Kirby.*
Lena tremulæ *Fab.*
Phyllodecta vulgatissima *Linn.*
Haltica evicta *Lec.*

Tenebrionidæ.

Paratenetus punctatus *Sol.*

Melandryidæ.

Melandrya striata *Say.*
Eustrophus confinis *Lec.*

Oedemeridæ.

Asclera ruficollis *Say.*

Mordellidæ.

Anaspis rufa *Say.*
Tomoxia lineella *Lec.*
Mordella scutellaris *Fab.*
" serval *Say.*

Anthicidæ.

Corphyra cyanipennis *Bland.*
Anthicus sp.?

Curculionidæ.

Macrops sparsus *Say.*
Pissodes strobi *Peck.*
Dorytomus laticollis *Lec.*
Magdalis n. sp.?
Anthonomopsis xanthocnemis *Dtz.*
Conotrachelus nenuphar *Hbst.*
Idiostethus ellipsoideus *Casey.*

Calandridæ.

Rhyncholus sp.?

Scolytidæ.

Tomicus pini *Say.*

Anthribidæ.

Allandrus bifasciatus *Lec.*

DIPTERA.

Diplosis sp.
Asyndulum montanum *Roder.*
Gnoriste megarrhina *O. S.*
Eudicrana obumbrata *Lw.*
Bibio pallipes *Say.*
" vestita *Walk.*

Scatopse pulicaria *Lw.*
Chironomus attenuatus *Walk.*
" tricinctus *Meig.*
Tanypus turpis *Zett.*
Psychoda sp.
Tipula frigida *Walk.*
" simulata *Walk.*
Pachyrrhina vittula *Lw.*
Ctenophora succeedens *Walk.*
Allognosta obscuriventris *Lw.*
Pachygaster pulcher *Lw.*
Chrysopila quadrata *Say.*
Leptis mystacea *Macq.*
Spania edeta *Walk.*
Taracticus 8-punctatus *Say.*
Asilus novæ scotiæ *Macq.*
" distinctus *Willst.*
Rhamphomyia basalis *Lw.*
" nigricans *Lw.*
" macilenta *Lw.*
Hilara seriata *Lw.*
" tristis *Lw.*
Gloma obscura *Lw.*
Platypalpus æqualis *Lw.*
" flavirostris *Lw.*
" trivialis *Lw.*
Tachydromia similis *Walk.*
Dolichopus albiciliatus *Lw.*
" batillifer *Lw.*
" scoparius *Lw.*
" variabilis *Lw.*
" n. sp.
Gymnopternus scotias *Lw.*
Medeterus n. sp.
" n. sp.
Hydrophorus sp.?
Platychirius quadratus *Say.*
Sphegina keeniana *Willst.*
Pipunculus nitidiventris *Lw.*
Peleteria flaviventris *V. d. W.*
Nemoræa aldrichii *Town.*
Thysanomyia inermis *Bigot.*
Aporia limacodis *Town.*
Carcelia leucaniæ *Kirk.*
Degeeria washingtonæ *Coq.*
Hypostena barbata *Coq.*
Sarcophaga sarraceniæ *Riley.*
" sp.
Mesembrina latreilli *R. Desv.*
Cyrtoneura stabulans *Fall.*
Mydæa pagana *Fall.*
" palposa *Walk.*
" urbana *Meig.*
Hydrotæa bispinosa *Zett.*
Hyetodesia rugia *Walk.*
" serva *Meig.*
Lasiops cunctans *Meig.*
Limnophora litorea *Fall.*
" sp.
Hylemyia grisea *Walk.*
Caricea fuscopunctata *Macq.*
" calopyga *Lw.*
" sp.
Cordylura munda *Lw.*
Hydromyza volucricaput *Walk.*
Scatophaga pallida *Walk.*
" n. sp.
Scatina bicolor *Walk.*
Helomyza lateritia *Lw.*
Tephrochlamys rufiventris *Meig.*
Tetanocera flavescens *Lw.*
" triangularis *Lw.*
Seoptera vibrans *Linn.*
Sapromyza lupulina *Fab.*
" notata *Fall.*
" rotundicornis *Lw.*
Lauxania obscura *Lw.*
" cylindricornis *Fab.*
Piophila casei *Linn.*
Drosophila n. sp.
Oscinis n. sp.
Meromyza americana *Fitch.*
Siphonella latifrons *Lw.*
" lævigata *Fall.*
Chlorops versicolor *Lw.*
Sphærocera subsultans *Fab.*
Phora rufipes *Meig.*

HEMIPTERA.

Heteroptera.

Eurygaster alternatus *Say.*
Perillus exaptus *Say.*

Camptobrochis nebulosus *Uhl.*
Macrocoleus coagulatus.
Labops hesperius *Uhl.*
Dicyphus famelicus *Uhl.*
Gargaphia tiliæ *Walsh.*
Aradus debilis *Uhl.*
Hygrotrechus remigis *Say.*
Salda n. sp.?
Notonecta undulata *Say.*
Corisa sp.?

Homoptera.

Smilia camelus *Fab.*
Aprophora parallela *Say.*
Lepyronia 4-angulatus? *Say.*
Helicoptera sp.?
Agallia novella *Say.*
Diedrocephala coccinea *Forst.*
Deltacephalus sp.?

ORTHOPTERA.

Ceuthophilus terrestris *Scudd.*

THYSANURA.

Isotoma sp.?
Tomocerus sp.?

NEUROPTERA.

Lestes hamata *Selys.*
Diplax rubicundula *Say.*
Psocus sp.?
Leuctra tenuis *Pict.*
Micromus montanus *Hag.*
Hemerobius sp.?
" sp.?
Platyphilax designata *Walk.*
Chrysopa oculata *Say.*
Meleoma signoretti *Fitch.*
" slossonæ n. sp. *Bks.*
Panorpa canadensis *Bks.*
" subfurcata *West.*

ARACHNIDÆ.

Araneæ.

Thargalia descripta? *Hentz.*
Epeira displicata *Hentz.*
" trivittata *Keys.*
Zilla montana *Koch.*
Xysticus 5-punctatus *Keys.*
" formosus *Bks.*
" gulosus *Keys.*
" emertoni *Keys.*
Philodromus aureolus *Walck.*
Pirata montana *Em.*
Icius montanus n. sp. *Bks.* mss.
" similis *Bks.*
Habrocestum decsrum *Blk.*

Acarinæ.

Bdella peregrina *Bks.*
Rhyncholophus parvus *Bks.*

CHIONOBAS CALIFORNICA.—This species of butterfly I have taken for a number of years within a few miles of Fort Klamath, Oregon. It generally inhabits the open pine timber, where there is a growth of "buck brush" (a waxy, smooth-barked bush) coming out of the brush into the glades, where there is usually a growth of grass and some moisture, where they are the most readily captured. This species (the males) will often chase a *Papilio* a long ways. It is found on high land, and low land, on dry and moist, but is *always* in or near shade. It is not a rare fly here, except in every other year, when it is extremely rare. In 1891 I did not see a single specimen; in 1892 there were plenty; in 1893 I took but three specimens, but the next year I saw large numbers. This year I have seen but a very few. So I expect a good catch of this interesting fly next year, when I would be glad to exchange it to my eastern brethren for their catches.—BURTON L. CUNNINGHAM, Fort Klamath, Oregon.

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., DECEMBER, 1895.

GEOGRAPHIC NAMES.

THE subject of geographic names is one of more or less interest to the entomologist. A description of a species without a locality is well-nigh useless: and a precise habitat is worth one-half the description. Notwithstanding the importance of geographic names, a great many entomologists are wont to treat them in a perfunctory manner, hastily jotting down Ill., if Illinois be meant, or Pa., or Penn., perhaps, for Pennsylvania, or worse still O., which every one is supposed to understand means Ohio—not Oregon or Oklahoma. Of course such abbreviations are understood by Americans, but there are others whose geographic knowledge of the United States is limited, and who know not whether N. Mex. means New Mexico or Northern Mexico; or whether Miss. stands for Mississippi or Missouri. A like abbreviation of geographic names in such countries as Russia, Austro-Hungary, or in fact, any foreign country, would certainly cause utter confusion among non-inhabitants not thoroughly versed in local ways outside of their own. If systematists would consider that their work is not for those immediately surrounding them, perhaps we would see fewer locality names given whose meaning is, more or less, ambiguous. Americans are the worst offenders in this respect.

F.

☞ NOTICE.—Those who wish to continue their subscriptions to Entomological News for 1896, will please indicate their desire to the Treasurer, before January 1st next. No change in price.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Bruuswick, N. J.

Insects as Pollenizers.—In the course of my studies on this subject I have examined the vestiture of quite a number of species of insects habitually found among flowers, and have been interested to find that in many of them, notably the Diptera, compound hairs, similar to those found in the Apidæ among the Hymenoptera, are present. This is especially true of the Bombyliidæ and Syrphidæ—"Bee-flies," and "flower-flies,"—and quite a variation in the character of the vestiture has been observed. In the Coleoptera some *Cetoniids* have the hair roughened though without processes in the species examined by me. My studies have been necessarily upon limited material, and attention is called to the subject here for the benefit of others better situated to carry this line of study further. In my forthcoming Report some of these specialized hairs will be figured.

The Katydid's Orchestra.—Under this caption we find in "Science" for September 20th, a note by Mr. George M. Gould, of Macon County, North Carolina, which indicates that entomological knowledge is not particularly well distributed in that region of the country, and also that perhaps not all papers on insects are referred to the entomological editor. After describing the method of stridulation and the sounds produced, Mr. Gould, who assumes that there is only one "Katydid," questions whether the difference in sound which he noted, might not be due to a difference in sex, seemingly ignorant of that almost fundamental fact that in the order Orthoptera the females are mute, and that his suggestion is an impossible one. It is bad enough to find absurd questions in newspapers; but when we find them in a professedly scientific journal, it always raises the question in the minds of those not specialists in other branches,—are those other subjects treated of with as much knowledge as this one of which we know something? From the description given, Mr. Gould evidently had never heard the true Katydid at all, and as he gives no sort of idea what the observed specimens looked like, we cannot say whether he had one or two species, and whether he had *Microcentrum*, *Scudderia* or *Amblycorypha* under observation.

Mr. Scudder claims, commenting on my criticism in "Science" for November 1, p. 591, that the genera, exclusive of *Cyrtophyllum*, mentioned by me are not properly called "Katydids," and he may be quite right. Comstock, however, in his "Introduction," and later in his "Manual" expressly calls them all "Katydids," and if this is an error, it is one that is being drilled into every student of entomology in the institutions where these text-books are used.

Fungus Gardens in Ants' Nests.—In 1893, Moeller published, at Jena, a paper on "Die Pilzgarten einiger Südamerikanischer Ameisen," in which he interestingly shows that the ants gather leaves and leaf fragments entirely for the purpose of cultivating upon them certain kinds of fungus growths which they use for food. They manifest sufficient intelligence to prevent the formation of spores or conidia, forcing the plant to produce what Moeller calls "Kohlrabis," upon which the ants feed.

At the Springfield meeting of the A. A. A. S., Mr. N. T. Swingle, of Washington, presented a paper before sections F and G, in which he recorded his observations of a similar habit in one of our North American species, near Washington, D. C. The species is *Atta tardigrada*, and by no means uncommon in the more southern parts of the United States. We are just beginning to understand a little about the internal economy of ants, and here we have a species at our doors which will repay the closest study and may give us a considerable amount of information as to the intelligent methods of these little creatures.

A New Insect Disease.—In "Science," September 20th, Prof. S. A. Forbes announces the discovery of a new germ disease of insects which seems to promise good results from experiments made in the laboratory. The organism is a Bacillus, larger than *B. insectorum*, and under natural conditions attacking the squash bug, *Anasa tristis*. A number of species, including the chinch-bug, have been dipped into infusions of Agar cultures of this Bacillus, and it has proved fatal in a remarkably short time; the effect becoming marked in a few seconds and death resulting in a few minutes. The preliminary results seem to be extremely favorable; whether field experiments will bear out the laboratory indications is an interesting question.

A New Parasite of the Mediterranean Flour Moth *Epheitia kurhuirela* Zell.—Until the present rearing, no parasite has been bred from this destructive mill pest in America. Two species, *Bracon brevicornis* and *Chremylus rubiginosus*, have been bred from this insect by European entomologists, and the former, as reported by Mr. Sidney Klein in the Trans. Ent. Soc. of London for :887 (pp. 52–54), is said to have been the principal agent in clearing an infested warehouse. Since my discovery of the flour moth in California in 1892, I have been eagerly watching for the appearance of some natural reducing agent in that region. In August, 1895, a San Francisco miller sent me a package of infested flour for experimental purposes taken from one of the sprouts in his mill. This material was placed in a breeding-cage, and September 2d I discovered a small Hymenopterous parasite attacking a full-grown larva. Two weeks later several parasites were removed, and were kindly determined for me by Mr. Wm. H. Ashmead. The species proved to be *Bracon hebetor* Say, and falls into Mr. Ashmead's subgenus *Habrobracon*. It is a widely-distributed species, and comes very close to *Habrobracon gelechiæ* Ashm. which I have also reared from *Canarsia hammondi*. September 24th,

from the same cage, I bred another specimen, a male, which is certainly different from typical males of *Habrobracon hebetor*. It differs markedly in several particulars—number of joints in antennæ, its more elongated form, much smaller size, and in color; but until the opposite sex is bred, Mr. Ashmead thinks it would be better to consider it only a variety of *hebetor*.—W. G. JOHNSON, Urbana, Ill.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

COCCIDOLOGICAL ITEMS.—*Dactylopius iceryoides* and *Ctenochiton perforatus* have been entered doubtfully in our lists, on the strength of their alleged introduction in California; vide "Insect Life," 1893, p. 282, "Canadian Entomologist," 1894, p. 34. The identifications appear to have been made by Mr. Craw. Mr. Maskell now writes me that he has received specimens of the forms so recorded, and finds that the supposed *D. iceryoides* is really *D. aurilanatus* Maskell, while the so-called *Ctenochiton* does not belong to that genus.

Gossyparia ulmi is sent to me in some quantity by Prof. G. C. Davis, who finds it at the Michigan Agricultural College on elm, "covering the under side of all the large limbs," and scattered on all of the smaller limbs. The elms on which it is at work are quite large trees, he adds.

In "Insect Life," last year, Prof. Davis reported a supposed new genus of Dactylopiini on palms in the hot-house of the Michigan Agricultural College. Mr. Howard was so kind as to forward me some of this material, and I have identified it as *Dactylopius nipæ* Maskell, a neotropical insect. It is an aberrant *Dactylopius*, and may form the type of a new genus one of these days.—T. D. A. COCKERELL.

A REMARKABLE phenomena is recorded to have occurred in Ireland in the Summer of 1688. The cock-chafers (*Melolontha*), in this instance, were in such immense numbers, "that when," as the chronicler, Dr. Molyneux, relates, "towards evening or sunset they would arise, disperse and fly about, with a strange humming noise, much like the beating of drums at some distance; and in such vast incredible numbers, that they

darkened the air for the space of two or three miles square. "The grinding of the leaves," he continues, "in the mouths of this vast multitude altogether, made a sound very much resembling the sawing of timber." In a short time after the appearance of these beetles in these immense numbers, they had so entirely eaten up and destroyed the leaves of the trees, that the whole country, for miles around, though in the middle of Summer, was left as bare as in the depth of Winter. During the unfavorable seasons of the weather, which followed this plague, the swine and poultry would watch under the trees for the following of the beetles, and feed and fatten upon them; and even the poorer sort of the country people, the country then laboring under a scarcity of provision, had a way of dressing them, and *lived upon them as food.* In 1695, Ireland was again visited with a plague of this same kind.—*Cowan's Curious Facts.*

Drasterius simiolus Cand. when first described was credited to California, and has never been identified by me. Since, it has been found abundantly in Mexico, and from a specimen sent by Mr. Champion it is certain that we have never had it in our fauna.

Dinoderus brevis Horn, described many years ago from Louisiana, is found by Mr. Lesne to be *minutus* Fab., the comparison having been made at my suggestion.

Bostrichus spectabilis Lesne (Ann. Fr. 1895, p. 173) has recently been described as from California. The characters given to the species are at variance with the general faunal type, and it is to me very doubtful as to locality. California has been too often assigned as the home of unknown vagrants.—GEO. H. HORN.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

Under the above head it is intended to note such papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology, unless monographs, or containing descriptions of new genera, will not be noted. Contributions to the anatomy of insects, however, whether relating to American or exotic species will be recorded.

1. MEMOIRES DE LA SOCIETE ROYALE DES SCIENCES DE LIEGE (2), T. xviii.—New Elateridæ, E. Candeze.

2. LE NATURALISTE. Paris, No. 206.—Monographic essay on the Coleoptera of the genera *Pseudolucanus* and *Lucanus* (cont.), L. Planet.—No. 207.—Relations between the means of defense and colors in insects, L. Cuénot.

3. The Larvæ of British Butterflies and Moths, by W. Buckler, vol. vi, Ray Society, London, 1895.

4. TIJDSCHRIFT VOOR ENTOMOLOGIE WITGEGEVEN DOOR DE NEDERLANDSCHE ENTOMOLOGISCHE VEREENIGING, Deel xxxvii, Afl. 3.—Two new Opilionidæ from Dutch East India, J. C. C. Loman. Ibid. Afl. 4.—A pair of neck organs in the larvæ of *Notodonta ziczac* L., A. Brants.

5. ANNALS AND MAGAZINE OF NATURAL HISTORY, No. 94.—On the Geometridæ, Pyralidæ and allied families of Heterocera of the Lesser Antilles, G. F. Hampson.——No. 95.—Newly-discovered stridulating organs in the genus *Scytodes*, F. O. Pickard-Cambridge. On the Lamellicorn Coleoptera of Japan, and notices of others, G. Lewis. Descriptions of new genera of Zephroniidæ, with brief preliminary diagnoses of some new species, R. J. Pocock.

6. Dr. Johannes Leunis Synopsis der drei Naturreihe. Erste Theil. Zoologie, Band ii, by Hubert Ludwig, 8vo. Hannover, 1895.

7. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, 1895, pt. 2.—On collections of Lepidoptera from British Central Africa and Lake Tanganyika, A. G. Butler.

8. BIOLOGIA CENTRALI-AMERICANA, Zoology, pt. 124.—Arachnida-Araneidea, pp. 145–160, O. P. Cambridge. Coleoptera, vol. iv, part 6, pp. 49–80, plate 3, D. Sharp. Lepidoptera-Heterocera, vol. ii, pp. 233–248, plates 61, 62, H. Druce. Rhyncota-Homoptera, vol. ii, pp. 89–112, plate 7, W. W. Fowler.

9. DENKSCHRIFTEN DER KAISERLICHEN AKADEMIE DER WISSENSCHAFTEN, Wien, lxi.—The Diptera of the Imperial Museum in Vienna, vii. Preliminary work to a monograph of the Muscaria Schizometopa (exclusive Anthomyidæ), pt. 4, F. Brauer and J. E. v. Bergenstamm.

10. BERLINER ENTOMOLOGISCHE ZEITSCHRIFT. HERAUSGEGEBEN VON DEM ENTOMOLOGISCHEN VEREIN ZU BERLIN, xxxix, Heft 4.—The Pompilid genus *Pepsis*, R. Lucas. Ibid. xl, Heft 1.—The group Homalomyia of the Anthomyidæ, with its genera and species, P. Stein. *Eristalis tenax* in Chinese and Japanese literature and contributions to the study of the Liponeuridæ Loew (Blepharoceridæ Loew, olim), C. R. Osten Sacken. Ibid. xl, Heft 2.—Dipterological studies ii, Sapromyzidæ, Th. Becker. Tomonotus Theresiæ, Brunner.

11. THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION, vii, 2.—On the development of sex in social insects, J. W. Tutt.——vii, 3—The resting habit of insects as exhibited in the phenomena of hybernation and æstivation, W. F. de V. Kane. Generic names in *Apatela*, A. R. Grote, with note, J. W. Tutt.

12. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxix, 9.—New ants from Australia, . . . A. Forel.——xxxix, 10.—Descriptions of new Arachnida of the family Thomisidæ, E. Simon. Descriptions of Coleoptera of Madagascar and neighboring islands, L. Fairmaire. On the Coleoptera of the genus *Sibinia* Germar, H. Tournier.

13. TRANSACTIONS OF THE NEW YORK ACADEMY OF SCIENCES, xiv.—Additional notes on the classification of Lepidopterous larvæ, H. G. Dyar.

14. MATHEMATISCHE UND NATURWISSENSCHAFTE BERICHTE AUS UNGARN, Budapest, xi, Bd. Erste Hälfte.—Material for a monograph of the Acarid fauna of Hungary, L. Karpelles.

15. MITTHEILUNGEN AUS DEM NATURHISTORISCHEN MUSEUM IN HAMBURG, Jhg. xii (1894).—East African spiders collected by Dr. F. Stuhlmann in the years 1888 and 1889, W. Bösenberg and H. Lenz. Supplement to Part I of Revision of the scorpions, K. Kraepelin.

16. BULLETIN DU MUSEUM D'HISTOIRE NATURELLE. Paris, 1895, No. 4.—*Clavicornia* of the Sunda Islands and Oceania collected by M. Raffray. Descriptions of new species in the collection of the Museum, A. Grouville.——1895, No. 6.—On the salivary glands of the Locustidæ, L. Bordas.

17. BULLETINO DELLA SOCIETA ENTOMOLOGICA ITALIANA, xxvii, 1, 2.—Revision of the European species of the family of gnats (gen. *Culex*, *Anopheles*, *Aedes*) (cont.), E. Ficalbi. Contributions to the Dipterological fauna of Italy, M. Bezzi.

18. ZOOLOGISCHER ANZEIGER, No. 486.—Note on the development of the lungs, entapophyses, tracheæ and genital ducts in spiders, F. Purcell. Corrections to my "On the Anatomy of the plant-lice, Aphidæ," which appeared in No. 484, A. Mordwilko.

19. Araneæ Hungariæ, . . . Cornelio Chyzer und Ladislao Kulczynski, vols. i and ii, pt. 1, 4to. Budapest (National Academy of Hungary), 1892, 1894.

20. AMERICAN NATURALIST, November, 1895.—The genera of Lysiopetalidæ, O. F. Cook.

21. TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, xxii, No. 3 (issued in September).—The species of *Dineutes* of America North of Mexico, C. H. Roberts. Descriptions of new Hymenoptera, T. D. A. Cockerell. Descriptions of new Hymenoptera, T. D. A. Cockerell and J. E. Casad. On the larvæ of some Nematoid and other saw-flies from the Northern Atlantic States, H. G. Dyar. New Neuropteroid insects, N. Banks.

22. THE ENTOMOLOGITS' MONTHLY MAGAZINE. London, November, 1895.—Wax secreted by Lepidoptera, H. G. Knaggs. Note on the transformations of a *Pteromalus*, T. A. Marshall.

23. BULLETIN OF THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION, No. 110.—The Hessian-fly, J. B. Smith.——No. 111.—"Raupenleim" and "Dendrolene," ibid.

24. Species des Hyménopteres d'Europe et Algérie, . . . fonde par Edmond André et continue sous la direction scientifique de Ernest André, fascicule 52.—Chrysidæ (cont.), R. du Buysson.

25. DELAWARE COLLEGE AGRICULTURAL EXPERIMENT STATION, Bulletin No. 28.—Injury from leaf blight and strawberry weevil, M. H. Beckwith.

26. THE CANADIAN ENTOMOLOGIST, xxvii, No. 11.—*Feltia subgothica* Haworth, or *Agrotis* (subgen. *Agronoma*) *jaculifera* Guenée, which?, M. V. Slingerland. The second *Anacrabro* and the smallest *Oxybelus*, T. D. A. Cockerell. Butterflies of Southern Manitoba, E. F. Heath. Notes on Mr. E. F. Heath's collection of butterflies, J. Fletcher. Supplementary note to the Saturnians, A. R. Grote. Coleoptera taken at Lake Worth, Florida, No. 2, J. Hamilton. Notes on the insect fauna of Somerset County, Maine, P. Laurent. Note on the larva of *Hemileuca californica* Wright, H. Dyar.

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The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper is published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

PHILADELPHIA, NOV. 12, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, 1509 S. 13th Street. Members present: Messrs. Bland, Boerner, Trescher, Laurent, Seiss, Fox, H. W. Wenzel, Schmitz, E. Wenzel, Haimbach, Hoyer, Castle and Griffith. Honorary member: J. B. Smith. Meeting called to order at 9 P.M., President Bland in the chair. Dr. Griffith read a letter from Mr. George Stortz, of Newark, N. J., acknowledging receipt of amount in payment of the Social's share of the expense of the recent Jamesburg meeting and expressing the wish that the members would attend the field-meeting next year at Newark. Dr. Griffith mentioned the receipt by him of some Coleoptera from Coeur d' Alene, Idaho, which indicated a close faunal connection with Eureka, Cala. Mr. Boerner recorded the capture by C. A. Blake, of a specimen of *Catocala relicta* at Rosemont, Pa., on October 20th. Dr. Castle exhibited some rare Coleoptera, including the following species: *Toxotus vittigera*, *Leptura vitiosus* and *cordifera*, *Acanthoderus decipiens*, from the Blue Mountains of Pennsylvania, and *Heterachites ebenus* and *Microrhopala melsheimeri*, from Masonville, N. J. Mr. H. W. Wenzel reported *Monocrepidius vespertinus* injuring beans. He had taken the species in large numbers on butter-beans at Atco, N. J., during the past Summer. Mr. Bland corroborated Mr. Wenzel's report, and in reply to Prof. Smith, who said that this species was not before known to have such habits, stated that the beans turned black in spots after being attacked. Mr. Laurent exhibited part of a collection of moths taken at North Wales, Pa., during the Summer months, and remarked on the apparent abundance the males of *Plemyria fluviata* in comparison to the females, the latter being outnumbered in the collection 10 to 1. He had always believed the contrary to the case. He further mentioned the following species in the lot as being not common to Pennsylvania: *Cindaphia bicoloralis*, *Agrotis bicarnia* and *Pyrausta acrionalis*. Prof. Smith made a communication on the modifications of the hairs of Hymenoptera and Diptera. The various forms of hair were shown by black-board illustrations. In the bees the greatest modifications occur, the hairs differing in all the genera and even in allied species. Plumose, barbed, spined, spatulate and other forms were found by him. Their use is evidently to aid in the gathering of pollen. These modifications, he stated, occur also in the Diptera, which are not pollen-gatherers, except fortuitously, and for this reason he was unable to account for the similarity of structure in both orders. There being no further business the meeting adjourned to the annex.

THEO. H. SCHMITZ, *Secretary*.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

OCTOBER 24, 1895.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Meeting called to order at 8.05 P.M. Members present: Laurent, Welles, Fox, Seiss, Ridings, Liebeck, Skinner. Associates: Reinick, Boerner, Castle. Mr. Hornig, visitor. The Publication Committee reported in favor of the publication of the following papers: Descriptions of New Parasitic Hymenoptera, by W. H. Ashmead (paper No. 2). The Toxonomic Value of the Antennæ of the Lepidoptera,—a Thesis presented to the Faculty of Cornell University May 1, 1895, for the degree of Doctor of Science, by Donaldson Bodine, with five plates. New North American Spiders and Mites, by Nathan Banks. Dr. Horn stated that he had recently received a letter from Mr. Hayward in which he stated that his paper on Bembidium would soon be ready for publication in the "Transactions" of the American Entomological Society. The speaker also mentioned an interesting fact in geographical distribution. About six or eight years ago a gentleman went to Texas and sent home a few pill boxes which contained species of great interest; some being species only before found from Mexico and Central America. Mr. Wickham had recently sent specimens from Brownsville, Texas, among them being a Histerid and a Carabid not before found except in the region of Guatemala, and not in the intervening territory. Mr. Fox remarked on peculiar characters found in two new species of *Gorytes: G. confertus* and *laminatus*. He also called attention to a recent article by Mr. W. H. Patton in which that author had asserted *Astatus elegans*, *bellus* and *montanus* to be but forms of one variable species. Mr. Fox took exception to this view and pointed out the distinguishing characters of the three species. Mr. Hornig having lately been rearing the larger moths gave his opinions on the so called cocoon mimicry, and said light and air had much to do with the color of the cocoon. The Director announced the death of Dr. John Godlove Morris, on October 10th, aged ninety-two years. The Director spoke in a reminiscent way of Dr. Morris, stating, among other things, that he was at the time of his death the oldest entomologist in the United States, and that he was a friend of Say and the Melsheimers, father and son. Mr. W. J. Gerhard was unanimously elected an associate of the Section.

Dr. HENRY SKINNER, *Recorder*.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

is a tendency to add blackish scales until, in one specimen, we have a fragmentary, narrow preceding shade. The s. t. line is pale, obvious in all the specimens, defined by a perceptibly darker s. t. shading. The terminal space is very even in color, sometimes a little paler than the rest of the wing, and there is a hardly perceptible series of terminal lunules. A vague, dusky, median shade is traceable in some specimens. The ordinary spots are all marked by distinct, narrow, yellowish lines, and these form the most prominent feature in the wing; the interior of the spots is of the ground color, leaving the pale outlines very distinct. The claviform is of good size and extends fully half way across the median space. The orbicular and reniform are both of good size, of characteristic form, and are connected inferiorly, the lines defining the two spots being continuous, so that we have a true fusion of the spots and not an accidental joining. The secondaries are dull, smoky brown in both sexes, but a little paler toward the base. As usual the fringes are pale, with a dusky interline. The underside is smoky, the hind wings paler and more powdered, and on both wings a more or less obvious outer line is apparent. Expands 30–37 mm.; 1.20–1.50 inches.

Hab.—Calgary, June to August.

Mr. Dod sends me six specimens, evenly distributed as to sex under the number 59, and states that the specimens were "common at Treacle in '94."

The species is a very well marked one and cannot easily be mistaken. I omitted to say, in the description, that the space between the ordinary spots above the bend of the junction is black, and this feature, with the narrow pale rings defining the confluent spots gives the insect a characteristic appearance. Its nearest ally we find in *bicarnea*, than which this species is somewhat narrower winged, but of much the same ground color and with approximately the same general pattern of marking.

Carneades recticincta n. sp. Pl. xv, fig. 7.—Ground color a very pale straw-yellow, with a dash of luteous. Head, thorax and abdomen, immaculate. Primaries with all the ordinary lines indistinct, barely traceable as slightly paler shadings; all the lines indicated on the costa by single, black dots. The location of the s. t. line is feebly marked by a few blackish scales. The claviform is not traceable. The orbicular is faintly marked by a slightly paler ring. The reniform is obscured by a rather broad, blackish band, which crosses the wing through the outer portion of the median space. This band has an irregular inner margin which is, however, well defined; outwardly it is rather diffuse, and limited principally by the location of the t. p. line. Secondaries white, or nearly so, a little dusky outwardly, and with a fairly distinct, discal lunule. On the underside the secondaries are silky with a very faint yellowish tinge. The primaries are also whitish, but the disc is smoky, or at least gray in shade. Expands 34 mm.; 1.36 inches.

Hab.—Calgary, in 1894.

Mr. Dod states that this is a unique. The specimen is a female, but is so characteristic that there can be little doubt of its location. It plainly belongs to that section of *Carneades* of which *messoria* is typical, and it belongs to that particular series of which my *pedalis* is a good example. The insect is very simply marked, and should be recognized without much difficulty.

Carneades vulpina n. sp. Pl. xv, fig. 5.—The general ground color is dull ashen gray; the head and thorax immaculate, with the vestiture somewhat loose, hairy and divergent; the primaries with none of the markings distinct and all the lines just barely traceable by slightly paler or darker scales. There is a somewhat better marked dusky median shade, and the series of pale s. t. dots are fairly visible in certain lights. The ordinary spots are quite distinct, but undefined; the orbicular is small, pale ringed, with a dotted center of the ground color. The reniform is marked by two parallel pale lines defining the inner and outer margins, the upper and lower borders being not traceable in my specimen. The secondaries are a little paler in shade than the primaries, and on the underside we have a yet paler tinting, also without definite maculation. Expands 37 mm.; 1.50 inches.

Hab.—Calgary, September 20th, "Treacle."

This is the number 18 of Mr. Dod's list, and he says that "it is probably unique." The antennæ are long and the serrations are not particularly well marked, but evident. It belongs in the *bostoniensis* section of the *messoria* group, in which the vestiture is hairy and the markings are not well defined. In this section we also find the tendency to unusually long antennæ. The insect bears a curious resemblance to certain faded gray forms of *Leucania unipuncta.*

Carneades acorais n. sp. Pl. xv, fig. 6.—Ground color a rather pale grayish luteous; head and thorax immaculate; primaries with all the markings indistinct and barely traceable. The ordinary lines can be detected on close examination as slightly darker shades, and the s. t. line is fairly well marked. The ordinary spots are very faintly outlined and of a slightly paler shade. There is a vague trace of a median line, but at first glance the wings seem to be without any markings at all. Secondaries whitish, with a fairly marked submarginal blackish shading, and a dusky lunule. On the underside both pairs wings are very faint pearly gray, with a rather well-marked blackish discal spot; the primaries a little darker. Expands 40 mm.; 1.60 inches.

Hab.—Edge Calgary, Aug. 23, 1894, at light.

The specimen is a male, and seems to be a unique. It was sent me as "perhaps *Carneades cænis*," but it cannot be that

species nor any other with which I am acquainted. There is the barest possibility that it may be the female of the species just previously described, that is, *C. vulpina*, but I do not consider it in the least likely. It would seem as if this species was best placed in the *pityochrous* section as a somewhat remote ally of *citricolor*.

Carneades servitus n. sp. Pl. xv, fig. 8.—The ground color is bluish gray; the collar marked by a transverse black line, below which it is paler; but otherwise the head and thorax are concolorous. The primaries are rather contrastingly marked, and all the ordinary maculation is visible in an imperfect condition. The pale ground color extends along the costa, and through the median cell to the end of the reniform, obliterating the orbicular entirely and leaving the reniform defined by a little triangular black spot. Below this bright gray streak the median space is darker in color, smoky or blackish, and in the basal space there is a blackish blotch below the median vein that darkens this space inferiorly. The basal line is single and blackish, marked on the costa only. The t. a. line is single, outwardly oblique, blackish, but not marked through the costal region. The t. p. line is single, dark, outcurved over the reniform and then evenly oblique to the hind margin. The s. t. line is not well marked in the male, defined by the darker terminal space and two broken preceding shades, giving a little the appearance of pale streaks on veins 3 and 4; but in the female the terminal space is of the ground color and the preceding shades are brown and rather vague. There is a dusky terminal line, followed by a paler line at the base of the fringes. The claviform is well marked and extends nearly across the median space, the outline rather indefinite. The ordinary spots have been already described. The secondaries are immaculate, smoky, with a yellowish tinge in the male, which is absent in the female. On the underside both wings are of the same shade as the upperside of the secondaries, and there is a partial outer line on each, with a traceable discal lunule on the secondaries. Expands 30–31 mm.; 1.20–1.25 inches.

Hab.—Male, Colorado, Bruce, No. 418; female, Calgary, 1894, No. 38.

I have had the male of this species in my collection for some time, but placed it rather doubtfully as an extreme variety of *redimicula*, as the type of maculation is decidedly similar, and the species belongs to that series. The receipt of a female from Calgary inclines me to the belief that we have a distinct species, for the peculiarities of the male are carried still further in the other sex; yet it would not surprise me if, in the event, my original belief proved to be correct. As species go, however, I believe at present that this is fairly well marked.

Hamestra gausata n. sp. Pl. xv, fig. 9.—General color a warm reddish gray, varying somewhat in the specimens, and sometimes becoming brown. The head and thorax are immaculate, but the scales are a little gray tipped, giving the vestiture a hoary appearance. The ordinary lines are evident, but not well marked. The basal line is defined in some specimens, and is black, reaching to the submedian vein and there bent inward to the base, so that we have the appearance of a short basal streak; in some specimens it is marked only at this point. The t. a. line is well removed from the base, forms three evident outcurves and is, as a whole, outwardly convex. It is black, preceded by a slightly paler shade, and occasionally this is inwardly limited by a few dusky scales. The t. p. line is pale, inwardly defined by dusky scales, which become blackish lunules below the median vein in some specimens. It is sometimes almost obsolete opposite the cell, is tolerably even, widely bent over the reniform and then strongly incurved below that point, so that the median space becomes very narrow, inferiorly. The s. t. line is well marked and pale, in some specimens preceded by a distinct dusky shade, which, however, is sometimes absent; occasionally the line is defined only by a somewhat dark terminal space. There is a very narrow terminal line. The claviform is evident and extends across the median space in the form of a black streak. The orbicular is large, oval, oblique, gray in color, defined by black scales; and usually the space between the t. a. line and the orbicular is dusky. The reniform is also large, gray, a little constricted centrally, black margined inwardly, but sometimes indefinite outwardly. Secondaries smoky, sometimes with a reddish tint, but without distinct markings. Beneath pale smoky, the secondaries with a blackish discal spot more or less marked. Expands 30–38 mm.; 1.20–1.52 inches.

Hab.—Calgary, in April.

Mr. Dod writes concerning this species that it is "not rare at Sallows, end of April." Five specimens from the basis of the above description, and in a general way the insect resembles *lustralis* in appearance. The antennæ in the male have the joints marked and set at the sides with tufts of bristles. They would thus be called somewhat serrated and bristle-tufted.

Hamestra ingravis n. sp. Pl. xv, fig. 10.—Ground color a rather deep lilac gray, with hoary powderings and tippings to the vestiture of the thorax. The collar is marked with a more or less well defined, median black band, below which an obvious reddish tinge prevails. The thorax has a distinct divided anterior tuft, and a less defined posterior tuft resembling somewhat the tufting in *purpurissata;* the abdominal tufting is also distinct. The primaries have all the markings obvious, and there is considerable contrast between the different parts of the wing. In a general way the basal space is paler, with an obvious lilac tinge; the median space is darker, tending to blackish. The s. t. space decidedly contrasting and has a more or less marked lilac suffusion. The terminal space is darker

gray, but in some specimens has also a distinct bluish tinge. The basal line is geminate, the defining lines not well marked; the center gray until the submedian space is reached, when it becomes yellow and makes a sudden turn to the base, forming thus an obvious loop. The t. a. line is also geminate, the included space of the ground color or a little paler, the preceding line only a little dusky and narrow; the following line black and evident. As a whole the line is outcurved, forming three evident lunulations. The t. p. line is marked chiefly by the difference in color between the median and s. t. spaces, but there is also a more or less obvious outer shade line, leaving a vague, included pale space. The line is even, as a whole moderately bent over the cell, and distinctly incurved below. The s. t. line is yellow, prominent, forming a feebly marked W on veins 3 and 4. It is preceded by a brown shade and by more or less obvious black sagittate marks before the W. The shade merges into the lilac suffusion of the wing. There is a series of black terminal lunules. The dark fringes are cut with pale on the veins. The claviform is a little paler than the ground color, variable in size, blackish and pale ringed, and with a darker or even black shade extending across the median space from it. The ordinary spots are distinct, of moderate size, of the pale ground color, internally ringed with pale or bluish, and with a narrow outer defining ring of black scales. The orbicular is oval and oblique. The reniform oblong and only a little drawn in outwardly; the secondaries are smoky, a little paler toward the base and with a more or less obvious discal lunule. Beneath the wings are purplish; the primaries smoky on the disc, both with an outer dark line and an evident discal spot. Expands 32–35 mm.; 1.28–1.42 inches.

Hab.—Calgary, in May.

I have a male and female specimen from Mr. Dod, who writes concerning this species, "not rare last May." One specimen is marked "light." I have also a specimen which I believe to be of this species taken by Mr. Bruce in Garfield County, Colorado, at an elevation of 6000 feet and bearing his number, 739. It is, however, a somewhat faded and partially imperfect specimen, and I would scarcely like to say positively that it is the same species. Of the specimens sent by Mr. Dod, the female, the largest of all the specimens, is very bright and contrastingly colored. The male, which was sent in a paper unset, is defective, and the coloring is not nearly so contrasting. There seems to be a little difference in the angulation of the s. t. line and the consequent distinctness of the "W," but no more, so I think, than is found in *cristifera*, to which this species is allied in wing form and a little in the general type of maculation.

Mamestra larissa n. sp. Pl. xv, fig. 11.—The ground color is ashen gray with a tendency to a darker suffusion. The head and collar inferiorly,

are paler gray or ashen, a black line bounding pale part of the collar superiorly. The scales of the thorax are pale tipped, the patagiæ are blackish margined; the tuftings are fairly well marked, but not at all prominent, and the abdominal tuftings are distinct, if not contrasting. On the primaries all the maculation is present, and there is no very strong contrast, though the median space is a little darker than the rest of the wing. The basal line is geminate, black and broken. The t. a. line is also geminate, its parts rather widely separated, the inner portion only a little darker, the outer blackish. The t. p. line is indefinite for the upper part of its course, but is vaguely geminate and outcurved over the reniform. Below the median vein the line is defined by an inner, curved black mark, which, with a little outward angle or vein, one reaches the inner margin. The s. t. line is pale, fairly distinct, with two outward curves and a little inward tooth opposite the anal angle. The line is preceded by a little darker shading, which, in the submedian inter-space, becomes rather prominent and defined, and here also there is a dusky shade following the line. In other words, there is a dusky, broad streak, which is cut by the contrastingly pale line. The s. t. space is darker on the costa, and is a little irregularly mottled. There is a narrow, black, terminal line, and the fringes are interlined with smoky and cut with pale opposite the veins; the ordinary spots are distinct; the claviform is outlined in black and extends nearly across the median space; the orbicular is round or nearly so, black margined, with a bright yellowish annulus and a brown dotted center. The reniform is large, kidney-shaped, not well marked outwardly, but with a distinct black inner border or lunule. The secondaries are whitish in the male, smoky in the female, with a discal lunule faintly marked. Beneath, both wings are gray and powdery, a little smoky in the female, and there is a more or less obvious outer line. Expands 27–28 mm.; 1.08–1.12 inches.

Hab.—Calgary, June 2d and 5th.

Mr. Dod sends me, under the number 48, one male and one female, and says that it is "rare at Treacle, June." The female seems a trifle larger than the male, and is a little broader winged. It is also a little more sordid in appearance, and looks as if it were a little greasy. The male is a bright specimen, and reminds me at first sight of *Litholomia napæ*. The species belongs in the series with *vicina*, but differs from all the forms of that species represented in my collection by the absence of a black basal streak, though there is an indication of this in the new species where the basal line turns toward the root of the wing on the submedian vein.

EXPLANATION OF PLATE XV.

1.—*Acronycta pyralis* n. sp.
2.—*Noctua patefacta* n. sp.
3.— " *atricincta* n. sp.
4.— " *substrigata* n. sp.
5.—*Carneades vulpina* n. sp.
6.— " *acornis* n. sp.
7.— " *rectiçincta* n. sp.
8.— " *servitus* n. sp.
9.—*Mamestra gussata* n. sp.
10.— " *ingravis* n. sp.
11.— " *larissa* n. sp.
12.—*Neuronia americana* Smith.
13.—*Xylophasia contradicta* n. sp.
14.— " *versuta* n. sp.
15.—*Homohadena stabilis* n. sp.
16.—*Deva trabea* n. sp.
17.—*Plusia insolita* n. sp.

NOTE ON THE LARVA OF HARRISIMEMNA.

By HARRISON G. DYAR.

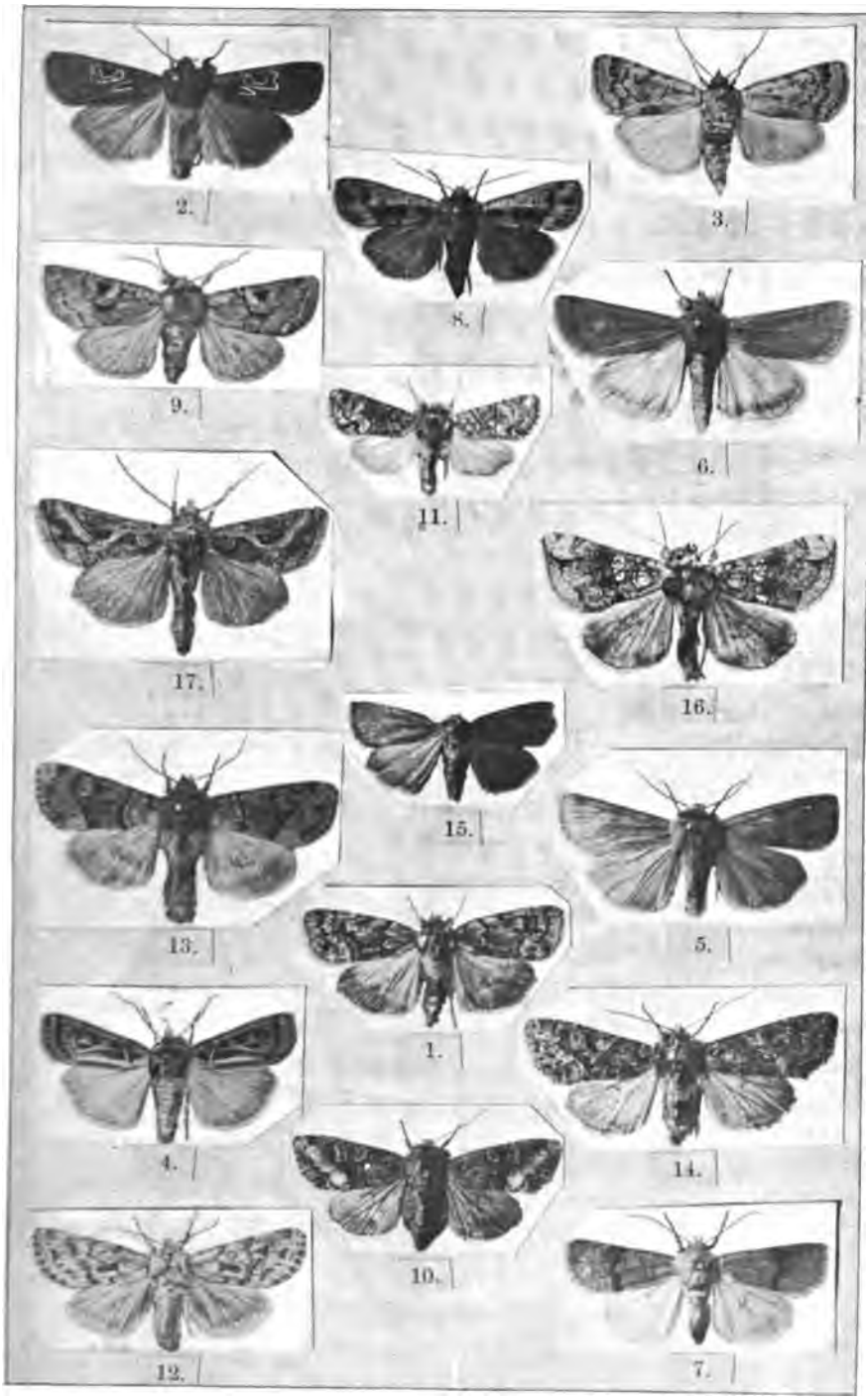
We have two recognizable figures and a general description of this larva (*H. trisignata* Walk.), but no exact account of the arrangement of its setæ. Consequently Mr. Grote was recently in doubt as to whether it should be placed in the Apatelidæ, a family defined on larval characters (Abhandl. des naturwissenschaft. Vereins zu Bremen, xiv, 15). The larva occurs rarely on lilac and *Ilex*, and I have before me a specimen obtained on the latter plant by Mr. Doll. The setæ are in the condition resulting from a degeneration from a typical wart formation. In most exposed parts of the body the normal tubercles bear but a single seta, but tubercle vi bears many setæ, and there is a crown of hairs around tubercle iv on joint 13. It will prove that the warts are much better developed in the younger stages, which I have not seen. On the humped up and prominent portions of the body (joints 5–7 and 12) the tubercles are produced and arise from large corneous areas, i and ii being nearly in line and curiously approximated. In the middle region the tubercles are small. The hairs from the thorax are long and coarse, those from the anterior edge of the shield remain entangled in the cast case, and, as the shield remains attached to the head, the curious string of cast heads results. The larva is one of the oddest of the Apatelidæ and would well repay a careful study of all its stages to one having the opportunity.

OBITUARY.

LADISLAUS DUDA, Professor at the Gymnasium of Prag, died at that place in August last. He was well known by his researches on the hemipterous fauna of Bohemia.

JULES FERDINAND FALLOW died in Paris on June 19th, aged 83 years.

ENTOMOLOGICAL NEWS for November, was mailed October 31, 1895.



NOCTUIDÆ.—Smith.

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Lepidoptera.—I have for exchange a large number of duplicates of last summer's collecting. Please write for list, Also cocoons of *Cecropia* and *Polyphemus*.—James Tough, 234 S. Water Street, Chicago, Ill.

Orthoptera.—Wanted, by exchange or purchase, specimens of the subfamily *Tettiginæ* from all parts of North America; literature also desired.—Dr. Joseph L. Hancock, 255 31st St. Chicago, Ill.

Lepidoptera.—Wanted, numbers of large, showy, butterflies, if in good condition, from any locality for which cash, or good exchange will be given.—Shelley W. Denton, Wellesley, Norfolk County, Mass.

Coleoptera.—I desire to exchange for native and exotic species.—Frederick Knab, Box 249, Chicopee, Mass.

Diptera.—N. A. Diptera wanted from choice localities; exchange or purchase. Will name, as far as I can, for privilege of retaining desiderata. Dolichopodidæ especially desired.—J. M. Aldrich, Moscow, Idaho.

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Lepidoptera.—Cash or exchange given for *Satyrus alope* and varieties from any locality.—M. J. Elrod, Bloomington, Ill.

Lepidoptera as live larvæ and pupæ, and papered imagos to exchange for foreign Lepidoptera. Offer insects of all orders for fossils.—R. R. Rowley, Louisiana, Mo.

Diptera.—I especially desire N. A. Stratiomyidæ, either by purchase or exchange. Will also name and exchange in other families.—C. W. Johnson, Wagner Free Institute, Philadelphia, Pa.

Coccidæ.—I desire to exchange California insects, any order, for Coccidæ (scale insects) from any locality, or for Coccid literature in any language.—W. G. Johnson (University of Illinois), Champaign, Ill.

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Lepidoptera.—I have duplicates of *Feralia jocosa* and other rare species for sale or exchange.—J. B. Angelman, 22 High St., Newark, N. J.

Lepidoptera.—Eggs of *Smerinthus modesta;* will purchase or give in exchange good material from N. Y. State.—L. I. Holdredge, 27 Ford Ave., Oneonta, N. Y.

Lepidoptera.—I have duplicates of *Papilio machaon, maacki, demetrius, macilentus, alcinous*, Desiderata; *P. americus, bairdii, brevicauda, dau nus, mylotes, nezhualcoytl, nitra, pergamus, pilumnus, polydamas, simon thoas.*—Otoji Takahashi, Tokio, Japan.

Fleas.—From any birds or mammals. Will name for duplicates, purchase, or give in exchange Hymenoptera, Hemiptera, or Coleoptera.—Carl F. Baker, Fort Collins, Colo.

Bembidium.—Being engaged in the study of this genus I will determine species for collectors. Specimens should be sent numbered, so that the numbers can be returned. I will also exchange for or purchase species not in my collection. Correspondence solicted with those interested in the genus.—Roland Hayward, 40 State St., Boston, Mass.

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Lepidoptera.—Wanted. Live pupæ of *Papilio ajax* and *P. cresphontes*, in quantites. New England and foreign Lepidoptera offered in exchange.—Field Bros., Milton, Mass.

Coleoptera.—Wanted. *Cychrus snowi*, *guyoti*, *ridingsii*, *hemphilli*, *merkelii*, and *fuchsianus;* *Nomaretus bilobus*, *cavicollis* and *fissicollis* for cash at liberal prices. Address:—Aug. Merkel, P. O. Box 1429, New York City, N. Y.

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Cerambycidæ.—Correspondence invited with parties having specimens for sale or exchange.—Fred. C. Bowditch, Tappan St., Brookline, Mass.

Coleoptera and insects of all kinds of South America for sale cheap, or exchange in Lepidoptera.—A. Troschel, 548 Larrabee St., Chicago, Ill.

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Hymenoptera.—Will name parasitic species for privilege of retaining duplicates, or will exchange. Braconidæ especially desired in order to complete a monograph of our N. American species.—Wm. H. Ashmead, 1738 Q St., N. W., Washington, D. C.

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Typhlocybini of the world wanted. Am willing to purchase or exchange. Will determine collections for the privilege of retaining uniques.—C. P. Gillette, Ft. Collins, Colorado.

Coleoptera.—I desire to exchange specimens of this order, also local Membracidæ for N. A. Coleoptera.—C. W. Stromberg, Galesburg, Ill.

Lepidoptera.—Wanted fine, mounted specimens of *Argynnis diana* and *Papilio brevicauda*. Will purchase or give rare exotic species in exchange.—Field Brothers, Milton, Mass.

Lepidoptera.—Cocoons of *Attacus prometheus* and *Samia cynthia* in exchange for diurnal Lepidoptera of the world and rare postage stamps.—Robert T. Saunders, U. S. Engineer Office, Wilmington, N. C.

Lepidoptera.—Exchange wanted against Lepidoptera of all parts of the world. **Coleoptera.**—Exchange wanted.—Bernhard Gerhard, 1475 Hamilton Ave., St. Louis, Mo.

Arachnida and **Neuroptera.**—Will name collections for privilege of retaining desirable specimens.—N. Banks, Sea Cliff, N. Y.

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Coleoptera and **Lepidoptera.**—Fine specimens of the large Longicorn *Dorcaschema wildii* to exchange; also fine specimens of the following Lepidoptera: *Pamphila massasoit, zabulon, panoquin, pontiac, fusca, aaronii, cernes, manataaqua*, etc.—Philip Laurent, 1306 Chestnut Street, Philadelphia, Pa.

Lepidoptera.—Cash or exchange given for *Satyrus alope* and varieties from any locality.—M. J. Elrod, Bloomington, Ill.

Diptera.—I especially desire N. A. Stratiomyidæ, either by purchase or exchange. Will also name and exchange in other families.—C. W. Johnson, Wagner Free Institute, Philadelphia, Pa.

Coccidæ.—I desire to exchange California insects, any order, for Coccidæ (scale insects) from any locality, or for Coccid literature in any language.—W. G. Johnson (University of Illinois), Champaign, Ill.

Wanted.—To exchange or purchase Coleoptera and Lepidoptera. Tennessee insects offered. Pupæ and inflated larvæ.—William Osburn, 107 University St., Nashville, Tenn.

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Fleas.—From any birds or mammals. Will name for duplicates, purchase, or give in exchange Hymenoptera, Hemiptera, or Coleoptera.—Carl F. Baker, Fort Collins, Colo.

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Lepidoptera.—I will exchange *Colias philodice* and *Pieris rapæ* for *Colias* or *Pieris* from the Gulf States, especially Florida. All in papers.—Sidney C. Carpenter, 122 Garden Street, Hartford, Conn.

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Coleoptera.—*Cicindela lecontei* and *C. scutellaris* wanted in exchange for eastern varieties of this species and other good Cicindelæ. N. A. Coleoptera desired for Coleoptera from N. Y. and Md.—Frank H. Johnson, 1128 McCulloh St., Baltimore, Md.

EXCHANGES

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Cerambycidæ.—Correspondence invited with parties having specimens for sale or exchange.—Fred. C. Bowditch, Tappan St., Brookline, Mass.

Lepidoptera.—American diurnals wanted, either by purchase, or exchange.—Henry Skinner, 716 N. 20th St., Phila., Pa.

Coleoptera.—I wish to exchange for beetles of N. America not already in my cabinet.—H. F. Wickham, Iowa City, Iowa.

Hymenoptera.—Will name parasitic species for privilege of retaining duplicates, or will exchange. Braconidæ especially desired in order to complete a monograph of our N. American species.—Wm. H. Ashmead, 1821 Q St., N. W., Washington, D. C.

Orthoptera and Odonata.—*Tettiginæ* and *Enallagma* (subgenus of *Agrion*) wanted from all parts of N. America.—Albert P. Morse, Wellesley College, Wellesley, Mass.

Lepidoptera.—Pupæ of *imperialis, undulosa, inscriptum, modesta* and first class, spread Lepidoptera for exchange.—H. Meeske, 323 Wyckoff Ave., Brooklyn, N. Y.

Lepidoptera.— European and Indian Lepidoptera for exchange. Wanted live pupæ and cocoons.—A. Voelschow, Schwerin i. Meckl., Germany.

Coleoptera.—Exchanges and correspondence desired with young entomologists in the South and West. Send lists to W. M. Hill, East Liverpool, Ohio.

Typhlocybini of the world wanted. Am willing to purchase or exchange. Will determine collections for the privilege of retaining uniques.—C. P. Gillette, Ft. Collins, Colorado.

Lepidoptera.—Wanted fine, mounted specimens of *Argynnis diana* and *Papilio brevicauda.* Will purchase or give rare exotic species in exchange.—Field Brothers, Milton, Mass.

Lepidoptera.—Exchange wanted against Lepidoptera of all parts of the world. **Coleoptera.**—Exchange wanted.—Bernhard Gerhard, 1475 Hamilton Ave., St. Louis, Mo.

Arachnida and **Neuroptera.**—Will name collections for privilege of retaining desirable specimens.—N. Banks, Sea Cliff, N. Y.

Lepidoptera, in papers, from India, in great variety, to exchange for South American, on equal terms.—Shelley W. Denton, Wellesley, Mass.

Lepidoptera.—Wanted *Samia cynthia* cocoons for cash.—A. W. Pearson, 24 Cliff Street, Norwich, Conn.

Lepidoptera.—I have R. I. specimens to exchange for southern or western.—Wm. Dearden, Lonsdale, R. I.

Lepidoptera.—I desire to communicate with collectors of Lepidopterous larvæ during the season. Larvæ of *Nola,* stage 1, and of any species of Thyridæ greatly desired.—Harrison G. Dyar, 243 W. 99th St., N. York.

Thysanura.—Named alcoholic, or balsam mounted Maine specimens for exchange. Will name specimens for duplicates.—F. L. Harvey, Orono, Me.

Lepidoptera.—Eggs or live pupæ of *Citheronia regalis* wanted; will give in exchange mounted specimens *C. relicta* and *Plusia striatella.*—Wm. Metcalfe, P. O. Box 204, Port Hope, Ont., Canada.

Phoridæ.—I expect to work on a monograph of the family next Winter. Will be grateful for material from all parts of N. A. After the work is finished the duplicates will be divided among those who have sent specimens.—J. M. Aldrich, Moscow, Idaho.

N. B.—Until notice to the contrary is given, correspondents and others will please withhold any insects which they may have intended to send to me, since I will be unable to give attention to such specimens.—P. P. Calvert.

Cerambycidæ.—Wanted in exchange for Cerambycidæ only. Send duplicate list to O. Dietz, 23 Park Row, New York, N. Y.

Lepidoptera and other orders.—To exchange for desiderata in Lepidoptera and Coleoptera.—Surgeon Major Clements, A. M. S., Sierra Leone, West Africa.

Diptera.—Sarcophagidæ and Muscidæ (*sens. strict.*) wanted from all localities in exchange for other Diptera, or will purchase.—Garry deN. Hough, New Bedford, Mass.

Hymenoptera.—Fossores and Bees wanted from western and southern United States, named or unnamed. Offer good American and European Coleoptera, Lepidoptera and Hymenoptera in return.—S. N. Dunning, 43 Niles Street, Hartford, Conn.

Lepidoptera.—Will exchange New England specimens for Lepidoptera from all parts of the world.—John C. Perry, Sec'y "A. A. 323 B," 238 Broadway, Malden, Mass.

Orthoptera.—Specimens of the family Tettigidæ wanted from all parts of North America.—Dr. J. L. Hancock, 255 31st St., Chicago, Ill.

Rare Exotic Butterflies.—*Ornith. urvilliana, antimachus, dynastor, napoleon*, etc. Wanted U. S. 10-cent stamps 1847 and 1851-66 5-cent red-brown and yellow and others. Reference: Hy. Skinner, M.D.—W. Dannatt, Ivy Dene, Westcombe Park, London, England.

Lepidoptera.—Cocoons of *Luna, Io, Cecropia, Promethia* and *Polephemus* to exchange for sp. not in my collection. Also good pinned and papered material for ex.—Leigh I. Holdredge, Oneonta, N. Y., U. S. A.

Lepidoptera from Utah, the N. W. and Illinois for exchange. *Chionobas chryxus, Melitæas, Lycænas, Epicallia virginalis, Gnophæla verniculata*, etc. I especially desire Argynnids, but accept anything not in my collection.—Arthur J. Snyder, 2622 Hartzell St., Evanston, Ill.

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Lepidoptera.—Exchange desired with collectors everywhere. I offer North and Central Amer. species.—J. L. Healy, 811 Morse Ave., Chicago.

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Lepidoptera.—I have specimens of *Argynnis bellona, A. myrina, Phyciodes nycteis, Satyrus nephele, Ancyloxmpha numitor, Lycæna scudderii, Pamphila zabulon*, for exchange.—C. T. Hills, 18 Sussex Ave., Toronto, Ont., Canada.

Lepidoptera.—Wanted pupæ of *imperialis, regalis, modesta*, etc., by purchase, or exchange for valuable material. Address: Herman Aich, Elberfeld, Germany.

Wanted, entomological literature. Will exchange Kansas Coleoptera. I also desire Coleoptera from other localities.—J. C. Bridwell, Baldwin, Kans.

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Lepidoptera.—Larvæ of any Thyridæ and Pericopidæ greatly desired: also Endromis, stage I, and any Maniidæ or Castniidæ.—Harrison G. Dyar, 243 W. 99th St., N. Y.

Coleoptera.—*Monohammus scutellatus* and *Boletotherus bifurcus* offered in exchange for other N. A. Coleoptera not in my collection.—Herman H. Abeling, Torrington, Conn. Box 305.

Coleoptera.—Miscellaneous Coleoptera of Klamath County, Oregon, in exchange for Eastern U. S. or Canadian butterflies. For terms apply to B. L. Cunningham, Fort Klamath, Oregon.

Wanted, a high-grade breach-loading shot-gun—a Burgess repeater preferred; also a trained bird dog; will give good exchange of foreign and domestic butterflies and moths.—J. S. Cotton, 16 4th St., Oneonta, N. Y.

Lepidoptera.—Will exchange Lepidoptera of Missouri and Illinois for those of other localities. Send lists. All letters answered.—Ernst Schwarz, 6310 Newstead Ave., St. Louis, Mo.

VOL. V. No. 1.

Entomological News

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

OF THE

ACADEMY OF NATURAL SCIENCES

OF

PHILADELPHIA.

JANUARY, 1894.

EDITOR:
HENRY SKINNER, M. D.
PHILIP P. CALVERT, Associate Editor.

ADVISORY COMMITTEE:
GEO. H. HOEN, M.D. CHARLES A. BLAKE.
EZRA T. CRESSON. CHARLES LIEBECK.
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Coleoptera of N. Am. and Mexico wanted by purchase or exchange; large collection.—Fred. C. Bowditch, Tappan St., Brookline, Mass.

Lepidoptera.—Wanted, *Plusia balluca*, *metallica* and *ampla*; also the Hydrœcias. Have some of the rarer eastern Noctuids for exchange.—Henry Bird, Rye, N. Y.

Coleoptera and **Hemiptera**. European and exotic, also postage stamps of Roumania, offered for American Hemiptera-Heteroptera unnamed.—A. L. Montandon, Strada Villor filarete, Bucarest, Roumania.

Lepidoptera.—Good exchange or cash given for specimens of *Nadata doubledayi* Pack. Also wanted any of the rarer Notodontidæ and Limacodidæ.—Harrison G. Dyar, 599 Broadway, New York City.

Coleoptera.—I wish to obtain Entomological literature in any language, especially that treating of Coleoptera and for works not in my possession will give good insects from the West and from Alaska, mostly Coleoptera. —H. F. Wickham, Iowa City, Iowa.

Lepidoptera.—I have for exchange *C. semidea*, *A. montanus*, *S. modesta* (imagos and pupæ), and other White Mountain material. The rarer Sphingidæ preferred.—R. Ottolengui, 115 Madison Ave., N. Y.

Lepidoptera (diurnal) of Iowa to exchange for species of same order not in my collection.—Henry G. Willard, Grinnell, Iowa.

Coleoptera.—Price-lists wanted.—Dr. E. B. Stephens, Plymouth, Mass.

Cynipidæ.—Named or unnamed Cynipidæ wanted by purchase or exchange. Always accompany the flies with their galls when possible.—C. P. Gillette, Ft. Collins, Col.

Orthoptera.—For exchange: Mexican Lepidoptera, unmounted, for literature, in any language, on N. A. Orthoptera. Also Indiana Orthoptera for others from any part of N. A.—W. S. Blatchley, Terre Haute, Ind.

Orthoptera.—I desire to procure, by purchase, exchange, or for identification, specimens of the genus *Spharagemon* from all parts of the country. —Albert P. Morse, Wellesley College, Wellesley, Mass.

Lepidoptera.—Bred specimens of *Actias selene*, hybrids from *luna* et *selene*, *cecropia* et *gloveri*, *cecropia* et *ceanothi*, and other rare moths; cocoons of *angulifera*, *luna* and *P. pithecium*; lists exchanged.—Emily L. Morton, Newburgh, N. Y.

Lepidoptera.—Wanted, cocoons of *luna*, *cecropia*, *promethea*, *gloveri*, *ceanothi*, *regalis*, *imperialis* and others; also pupæ of Sphingidæ, against Lepid. of Eur. and India.—A. Voelschow, Schwerin, Mecklenburg, Germ.

Lepidoptera.—American diurnals wanted. Will buy or exchange. Hesperidæ and Lycænidæ especially desired.—Henry Skinner, Academy of Natural Sciences, Logan Square, Philadelphia, Pa.

Odonata.—Dragonflies. Species not in my collection wanted from all parts of the world. N. American species given in exchange, or named by special agreement.—P. P. Calvert, Acad. of Nat. Sciences, Phila., Pa.

Coleoptera and **Lepidoptera.**—I desire to exchange specimens with collectors in the South and West who wish to extend their collections; correspondence solicited.—F. W. Russell, M.D., Winchendon, Mass.

I am desirous of collecting in any of the Orders in Northwestern Ohio; write me.—N. Sager, Jr., Herring. P. O., Allen Co., Ohio.

Diurnal Lepidoptera.—I will be pleased to correspond with collectors with view to exchanging Lepidoptera of the world. I usually have 2000 or 3000 mounted duplicates on hand, in perfect condition. A. G. Weeks, Jr., 360 Washington St., Boston.

(Continued on third page.)

EXCHANGES—(Continued)

Lepidoptera.—A few rare Indian Lepidoptera to exchange for rare species from the Northwest.—Levi W. Mengel, Reading, Pa.

Correspondence and exchange of insects desired with young entomologists, especially in the Southern and Western States and Mexico.—Stewart N. Dunning, 43 Niles St., Hartford, Conn.

I desire to dispose of Japanese insects by sale or exchange, and of *A. yamamai* and silk-worm *ova* at once; correspondence solicited; refer by per. to Prof. C. V. Riley.—Otoji Takahashi, Tokio, Japan.

Coleoptera.—*Aegialites Fuchsii* Horn, Trans. Am. Ent. Soc. xx, p. 143, 1893. I offer this rare and interesting species in exchange for Coleoptera not in my coll. Address C. Fuchs, 212 Kearney St., San Francisco, Cal.

Lepidoptera.—I desire to obtain eggs or larvæ of *Eacles regalis* and *Sphinx modesta;* will exchange for other good material.—Hermann Aich, 43 Murray St., New York.

Lepidoptera.—I have a large number of duplicates which I offer for sale or exchange. Address G. Cleveland, 17 Elm St., Oneonta, N. Y.

Lepidoptera.—Hybrid cocoons of *Ceanothi* et *Cecropia* in exchange for rare, perfect specimens of Sphingidæ, Arctiidæ, Bombycidæ, Catocalæ and Diurni not in my collection.—Dr. R. E. Kunzé, 606 Third Ave., N. Y.

Lepidoptera.—I have on hand a large supply of duplicates to exchange for insects of the same order not in my collection. Correspondents especially desired from the S. W. and N. W. part of the U. S. Send list of duplicates to Leigh I. Holdredge, 27 Ford Ave., Oneonta, N. Y.

Lepidoptera.—Several thousand specimens taken in Utah during past Summer for exchange; *Parnasius, Chionobas, Thecias*, etc.; also good specimens from Illinois; all in papers.—A. J. Snyder, North Evanston, Ill.

Lepidoptera.—Wanted, cocoons of *regalis, imperialis, gloveri, io, cecropia, polyphemus, promethea* and others, as well as pupæ,—against Lepidoptera of all parts of the world.—Bernard Gerhard, 1520 Lafayette Avenue, St. Louis, Mo.

Lepdoptera.—Correspondents wanted on Pacific coast, or Colorado, with a view to exchange in Lepidoptera.—Oliver J. Staley, Marshall, Saline County, Mo.

Lepidoptera.—We wish to obtain, either by purchase or exchange, live larvæ or pupæ of *Ecpantheria scribonia* and imagos of *Erebus odora*.—Field Brothers, Milton, Mass.

Wanted.—Coleoptera and Lepidoptera from all sections. Will exchange works on Entomology, Zoology and Botany, and works relating to the languages of the N. A. Indian. Send for list.—Wm. D. Doan, Box, 377, Coatesville, Pa.

Lepidoptera.—Am in want of live pupæ of Papilios and Pierids, and imagos in papers, especially varieties from any part of U. S. Can offer in return many rare butterflies from India, Africa, Australia, etc.; also cocoons and imagos of Indian, Chinese and Japanese silk moths.—John Watson, 177 Moss Lane, East Moss Side, Manchester, England.

Lepidoptera.—Three thousand duplicates for exchange. Send list of duplicates. Correspondence solicted.—P. C. Truman, Volga, S. Dakota.

Lepidoptera.—I have for exchange a large number of duplicates of last summer's collecting. Please write for list. Also cocoons of *Cecropia* and *Polyphemus*.—James Tough, 234 S. Water Street, Chicago, Ill.

Lepidoptera.—I have a large number of specimens, taken in the Sierra Nevada Mountains, for exchange.—F. Burns, Verdi, Nevada.

Orthoptera.—Wanted, by exchange or purchase, specimens of the subfamily *Tettiginæ* from all parts of North America; literature also desired. —Dr. Joseph L. Hancock, 255 31st St. Chicago, Ill.

Germany.—I desire to exchange German Lepidoptera and Coleoptera for specimens from the Southern and Western States.—Fine specimens and many rare ones.—Wm. Kayser, Wapakoneta, Ohio.

P. C. STOCKHOLDER, ENTOMOLOGICAL PRINTER 35 N. 7TH ST., PHILA. PA.

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The recent publication of Mr. P. P. Calvert entitled, "Catalogue of the Odonata—Dragonflies of the vicinity of Philadelphia, with an Introduction to the Study of this Group of Insects" (Trans. Am. Ent. Soc. September, 1893), is of **special importance** to all students of the group; being not only a description and synonymy of sixty-six species found about Philadelphia, but an exhaustive general account of the Odonata, together with bibliography and synoptic tables, giving characters of the families and genera; 124 pp., 2 plates. Price **$1.00** per copy. Address:

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Pompilus mariæ Cress. (Enlarged).

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List of Coleoptera of America N. of Mexico, by S. Henshaw, 1885 . 1.25

Synopsis of Hymenoptera of America North of Mexico, by E. T. Cresson. Part I, Families and Genera; Part II, Catalogue of Species and Bibliography, 1887 . . . . . 3.00

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Banks (N.)—Synopsis, Catalogue and Bibliography of the Neuropteroid Insects of temperate N. Am.; 1892, 47 pp., cuts 50

Calvert (P. P.)—Catalogue of Odonata of Philadelphia, with introduction to the study of the group; 1893, 124 pp., 2 pls. . . . 1.00

Smith (J. B.)—Catalogue of the Lepidopterous Superfamily Noctuidæ found in Boreal America (Bull. U. S. Nat. Mus. 1893) 424 pp., 8 vo. 2.50

—— Descriptions of new genera and species of (N. American) Noctuidæ; 1894, 50 pp., 6 pl. 75

Neumoegen and Dyar.—A preliminary revision of the Lepidopterous family Notodontidæ, 1894, 30 pp. 50

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Coleoptera.—Catalogue of the Coleoptera of Alaska, with the synonymy and distribution, by John Hamilton, M.D., 1894, 38 pp. . . .50

——Revision of the genera and species of Desmori of N. Am. by Wm. G. Dietz, M.D., 1894, 66 pp., 2 pl. 75

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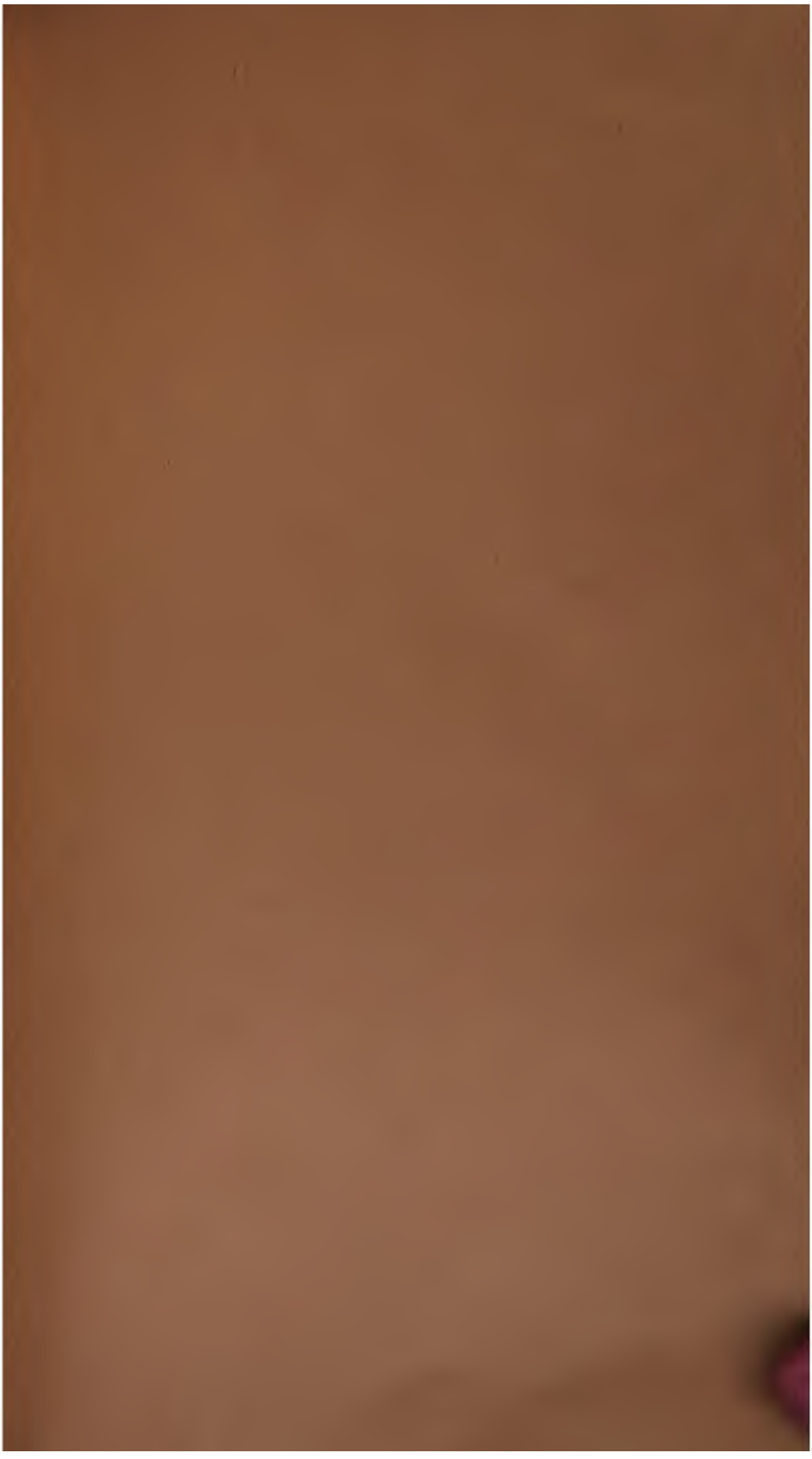

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